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THE

# JOURNAL OF HORTICULTURE,

## COTTAGE GARDENER,

AND

## HOME FARMER.

A CHRONICLE OF COUNTRY PURSUITS AND COUNTRY LIFE, INCLUDING BEE-KEEPING.

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## TO OUR READERS.

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WHEN time passes quickly it is said to pass pleasantly. To ourselves the half-yearly volumes of the Journal appear to be completed in a very short period of time, and we doubt not it is the same with our experienced helpers.

It is pleasant to share in work that is appreciated, and we have the satisfaction of knowing that our efforts to gather and distribute information on subjects of culture meet with warm and wide acceptance.

Our volume closes as the great Rose season opens, and when these words reach our readers the Floral Queen of summer will have received the homage of thousands of loyal subjects. We join in that great throng, and shall not cease to hope for still finer Roses and firmer friendships.

Taking the Rose, for the moment, as the representative of floriculture, we cannot fail to observe how real is the interest that is invested in this branch of the greater subject of which the *Journal of Horticulture* is an exponent.

In the broadest sense it will continue to reflect the character of the horticultural industry, as it will, as heretofore, record the practice of expert craftsmen as the best means of pointing the way for the less experienced who are striving to win success.

The policy of the Journal remains the same. Unmoved by political or polemical strife it will be steadily, and, we trust, harmoniously pursued. Its mission is to do good, and the "vote and interest" of a world-wide constituency is sought on that ground, and that alone.

As there have been no abstentions from our poll we return thanks to all who have assisted in the completion of the volume to which the annexed index refers, in the full assurance that a still larger measure of support will be accorded in the future.



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## COMING EVENTS

7	TH	Royal Society at 4.30 P.M.
8	F	Quekett Club at 8 P.M.
9	S	Royal Botanic Society at 3.45 P.M.
	SUN	1st SUNDAY AFTER EPIPHANY.
11	M	
12	TU	Royal Horticultural Society—Fruit and Floral Committees at 11 A.M.
13	W	Society of Arts at 8 P.M.

### A NEW YEAR'S GREETING.

**T**HERE are some distinctions which are eagerly coveted. To have a handle to one's name or a string of letters after it; to be a reigning beauty or a distinguished wit; to have plenty of filthy lucre, even in Scotch notes—are all things which create envy towards their possessor. On the other hand, there are distinctions which people may wear without their neighbours in the least degree breaking the tenth commandment because of them. To be the "ugly duck" of the family; to be a poor baronet without a sixpence to call it his own; or to be the "oldest inhabitant," however respected, of the town, are things which most think their possessors are quite welcome to have; and as I feel convinced that the honour of addressing a few words of greeting to the readers of the Journal has been given to me for the simple reason that I am one of the oldest, if not the very oldest, contributor to its pages left. It is twenty-five years since I first entrusted my desultory thoughts to its pages. I do not think that I shall be envied the privilege, although some remembering the wise and wholesome words which have been addressed to them in former years by other and abler hands will be inclined to say, "Evidently in his dotage. Why didn't our Doctor get some fresher hand to write to us?" but as the duty has been given to me I must perforce do what I can. When I said to the Doctor, "I will do the best I can." "Of course you will," was his reply; "we expect that." I doubt not the verdict will be, "Bad at the best."

And is not the first word of greeting due to the Journal itself? I have been lately looking through in the library of the Horticultural Club some of the very earliest volumes of the *Cottage Gardener* when the Journal was in its babyhood. I can't say its long clothes (for the pages were so small) and as I looked at the later volumes I could not but feel how great had been its progress since those days. But not only so. It has had children born to it, and these seem to share the vigour of its parent in the race for distinction. In the competition which it has had to meet with it has more than held its own. Contributors have passed away, honoured signatures are no more to be found to its papers, new ones have taken their place; but I do not think that anyone can say it has deteriorated. It still retains its thoroughly practical character; it is still the journal to which more especially the amateur delights to turn for information, rarely to be disappointed. It still retains that friendly, brotherly character which it has so long held, and should an intruder attempt to disturb this friendly feeling of our family party he is very soon told "You can't lodge here." Bearing all these things in mind surely our first greetings are due to the Journal and its accomplished and genial Editor. May both have a prosperous and happy new year, and in a real sense "May this be as the last, and much more abundant."

To the contributors to its pages I would also send my greetings of well-wishing. Many of them occupy the places which have been worthily filled by men earnest in their call-

ing—men who were distinguished among many things for their modesty. True knowledge always makes a man distrustful of himself; a little puffs him up. Some years ago I was talking with a medical man on the treatment of a particular disease. He said something which startled me; but I said, "Doctor, I thought nothing was more certain than in such a disease these things would be injurious." "When I was young," he said, "I thought that I knew everything. After thirty years' experience I began to feel that I knew nothing." The man who in this spirit tells us his thoughts is more likely to be a true instructor, and I rejoice to think there are many such. They feel that they have a very large *clientèle* amongst all classes of the community, and are careful not to advance doubtful matters, or to lead others astray by advocating false theories or unsound practice. To you, my friends, I send my brotherly greeting. Pardon one who contributed to its pages before you entered on this changing scene, if he ventures in giving you all hearty wishes for your welfare and happiness in the new year to say, Remember your responsibilities as teachers of others, and be not will-o'-the-wisps, but true lights.

And what shall I say to the readers of the Journal, so varied in their character, so widely scattered in their habitations, so diverse in the gardens which they possess? I cannot perhaps do better than draw a moral from my own past experience. I have for half a century or more loved flowers. I have cultivated them sometimes under much difficulty—sometimes, as now, in more easy circumstances. I have had arduous posts to fill, and have had my share of the troubles and sorrows that are our assured portion here; but I can fearlessly say that among the things which have helped me and enabled to take a right view of things few have been of greater service to me than my love of flowers. Many of my most cherished friendships have originated through it; many of my pleasantest hours have been spent with those who have had a common interest with me in that love; in days when the head has been overtaxed, to throw work on one side, and to go into one's garden, dismissing for a while more serious matters, or in days of trouble to find the flowers speaking to us of that love and goodness which has made our earth so full of beauty, bearing withal its marks of decay to remind us of those realms into which decay never enters. All these make me say to the readers of the Journal, Cherish your love of a garden. Oh! how many are the advantages we possess now to what we did fifty years ago! Then greenhouses were only the luxury of the wealthy, whereas now they are almost the necessity of every lover of a garden. See how the world has been ransacked during the last half century to provide for our gardens, and think yourselves fortunate that so many are catering for your benefit, and placing such treasures within your reach. Let me give one word of caution—Do not attempt things which either your circumstances or your locality will not permit you to do thoroughly. When I see anyone in a smoky locality attempting to grow Roses, or another attempting to grow Rhododendrons on chalk, I pity the misdirected energy which must result in failure. Attempt what is possible, not what is impracticable, and don't get beyond your depth. It is possible even with flowers to do this, and it can only be a worry instead of a pleasure. Why turn your honey into gall? Why make what is intended for your happiness be an occasion of falling?

A good deal has been said of late about honours to horticulture. Some have written with a high sense of virtuous repudiation who would be amongst the first to welcome them if proffered to them; and others have thought it would be well that they should be given to them as well as to other callings. I think we may leave such matters to settle themselves. It is a happy thing in our dear land that while titles are not treated with the assumed contempt they are in some countries, a man is never less esteemed of because he lacks them.

And now as we look forward into that coming year of



whose tangled skein we know nothing, and of whose bearing on our favourite calling we are equally ignorant. Whether we have bright skies or cloudy days, enter upon it with a good heart. I speak not now of higher and holier things, for I am not here to sermonise. Faint heart never won fair lady; and our fair Flora, though no way coy, likes her lovers to be bold and courageous. Make use of all the many advantages you possess. Let "Forward" be your motto; and to one and all let an "old boy" wish you a very happy and prosperous new year.—D., Deal.

### KEEPING APPLES.

BEFORE plunging into this question we may preface what has to be said thereupon with a few remarks on gathering the fruit. At the Edinburgh Congress in November the fact that large quantities of the fruit had been removed from the trees long before it had arrived at the stage when it was ready for gathering was most patent. Some collections were in almost every dish showing the unmistakeable symptoms of premature removal, and how the bulk from which these samples had been selected were to weather the succeeding four or five months during which Apples would be wanted was to us a question that admitted of no solution. From that it would appear that many of the Apples in the north are gathered before they are ready, and it would follow that many gardeners have not considered the matter as they ought. We have unfortunately been obliged to remove a large quantity of fruit from the trees before it was quite ready, and that on account of the multitude of "songsters" which have to be fed at the period the earlier of the main crop sorts are swelling off, but the later kinds have been quite safe from the birds. There are some simple rules which have been laid down in order to help the inexperienced to judge as to the fitness of the fruit for removal, such for instance as the pips ripening and the ease with which the fruit parts from the tree on testing it; but neither of these tests is infallible, and nothing is to be found to take the place of a tried judgment. If trees are heavily cropped, or if the soil is very dry, fruit will be easy to detach from the tree even before it is ready.

The Apple, like other fruits, has its "swelling" stages, and it is very often during the period of its last swelling that much fruit is gathered. A good plan, in fact the only sensible plan in gardens, is to gather the largest of the fruit as it becomes fit, leaving the smaller and greener for a longer period until it also is fit to gather. We have often our best fruit, either as regards size or colour, from the fruit thus left. We have so large a quantity to gather that the rules laid down by some pomologists as to the handling of the fruit, such as laying it in single layers in wadded trays and careful removal on to shelves in the fruit room, are matters which we cannot compass; nor is it at all necessary unless in the case of fruit selected for any special purpose. Large baskets with side handles are admirably fitted for carrying the fruit, and with ordinary care it receives no damage; all fruit that is ready parts quite easily from the tree. It should be taken in the hand and bent backwards without twisting. If fruit requires to be twisted off it is better left on the tree until it will come off without it.

Gardeners have to put up with such means as they have provided them to keep fruit. Some of these rough-and-ready buildings which we have seen are much better adapted for preserving fruit in good condition for a lengthened period than the most pretentious and expensively fitted structures we have had the privilege of inspecting. The interior arrangement of an Apple room need be of only the simplest nature, room to walk and to work among the fruit and shelving to carry it is all that is required. The pathways should be wide enough to allow all the work required to be easily performed, and the shelves should be as wide as they can be conveniently managed, constructed of close boards, and with deep sides to keep the fruit in. In order to promote ease of access the tiers of shelving should not be too close together, and this is of the less consequence, as we have proved that Apples keep quite as well banked up in heaps as they do laid out singly. The only precautions necessary are to put in no damaged fruit, to gather and store in dry weather, and to wait until the fruit is ready before gathering it. During the time the storing of the fruit is progressing a current of air should be allowed to pass through the structure, and this should continue for a week or two after the shelves have been filled. The important feature to study after the fruit has been stored is to keep the room at an equal temperature, if possible not below 40° and not above 45°. A thatched and air-encased lean-to with a high wall on its south side, an outer and an inner door with a short entry between, and one solitary window which could be blocked up with straw and shuttered from the outside would please as perfectly for a fruit room; as it is we have to go on with a very roughly fitted building, and in those points

wherein it comes short of what we should wish it to be we endeavour to meet with such appliances as we can readily call into use.

It is very generally supposed that Apples will not keep well unless the storeroom in which they are placed is secluded from light; but we have repeatedly kept Apples in good condition as long as it was possible to keep them in a lighted apartment. The real benefit derived from the exclusion of light would appear to be that the air inside the building is kept at a more regular temperature by means of shutters acting to some extent as non-conductors of either cold or heat. In changeable weather, such as recurring frosts with their accompanying thaws, we have stuffed the outside of the windows well up with straw, and in this way kept the fruit from such sudden and excessive changes of temperature as they would otherwise have had to experience. In long-continued severe frosts we cover all the fruit with layers of newspapers, which are in themselves a great help. We also keep a few petroleum lamps going, and on occasion made charcoal red hot and shut it up in an old saucepan. The thing to keep in mind when applying artificial means of keeping up the temperature is to endeavour to keep the temperature from lowering beyond a given point, for this is much easier of accomplishment than to raise the temperature after it has fallen, while the fruit, as a matter of course, is better kept under the former conditions than under the latter. It is a safe plan to keep the fruit shut up and covered for a while after open weather is established. It may be necessary to allow a current of air through the building in order to dry any accumulation of damp which may have settled on the fruit; care, of course, must be taken to choose a hard drying breezy day for this purpose.

As to the removal of decaying fruit, we have not found that to be an undertaking of any great moment when the following rules have been followed—viz., to store only good and unblemished fruit; to have all fruit removed as it becomes ready for use, and in cases where sorts keep a good while after they are ready for use to see that these are all used before decay begins; and generally to carry out the matters of detail mentioned in foregoing remarks.—B.

### THOUGHTS ON THE PAST YEAR.

WERE I to venture to say all I think on the events pertaining to gardening and the cultivation of the land generally during the past year, it is almost certain I should "tread on somebody's toes," and that would be quite out of harmony with the sentiments of the season when everyone is wishing each other a happy new year. In this wish I share sincerely, not towards those who have agreed with me alone, but equally to those who have differed; and especially with these latter, no matter who they are, nor how strong they have been in their opposition, I would like to "tak a cup o' kindness for Auld Lang Syne."

I AM not at all certain that the year that has just closed has been one of the brightest and best for gardeners generally, and it is certain it has not been prosperous for their agricultural brethren; but I think this—that there has been more despondency on the part of farmers than is justified, and that they have not striven with the same zeal to meet and overcome obstacles as gardeners have. There seems to have been a resting from strong effort on the part of agriculturists in the lurking hope that some magician's wand would by a miraculous swoop suddenly bring prosperity to an "oppressed" community. I believe in no such things. Farmers have "given up," gardeners have "plodded on," and the result is that gardens have been as productive as ever all through the depression period, but farms have not. The only safe and sound principle to act upon in good and bad times is to make the best of opportunities; and the greater the difficulties the greater should be the efforts to surmount them.

It has become almost a habit to think and say that "times" were never so bad as now. If my memory is not deceptive I have known them decidedly worse—for everybody, labourers, farmers, gardeners, landlords. I can remember when wages on farms and in gardens were at the least 10 per cent. lower than now and the necessities of life, on the average, 10 per cent. higher—that is, 20 per cent. in favour of the present over the "good old times" of the past; while the national rent roll now is certainly greater than it was then, notwithstanding the "reductions." I can well remember the time when garden and farm labourers received 10s. a week on an estate where the wage rate is now 20 per cent. higher, and the rental of the same estate is much greater now than it was then. Farm produce was lower in price than it is now—mutton 4d. to 6d. a pound at the butcher's; butter 8d. a pound; eggs twenty-four for a shilling; oats 15s. a quarter; barley 25s., and Wheat as low as it is now, sometimes, at others a good deal higher. But farmers "lived" and paid their rents then. Why cannot they do so now?

THE truth about the whole matter in my opinion, as regards the relative prosperity or otherwise of the "times," is not to be found in the rent roll of one man or the wage of another, but in something else. It is not the earning, but the spending in which lies the sequel of the present "depression." A term of inflated prosperity begot a more luxurious style of living. The faster money was made the more lavishly it was spent. Agriculturists innumerable were drawn into the vortex and had no balance at the bankers when the time of trial came. They had to limit expenditure by restricting labour, stock, and fertilisers, and as a



natural consequence the land became infested, and in the case of thousands of acres practically "eaten up" with weeds. That is the certain road to ruin, and is the root of the evil of falling rents that is so much to be deplored.

PERMIT me now to express my thoughts very plainly on a public question of vital import. If I were a landlord and had tenants who had been accustomed to pay, say £2 an acre for the land in the so-called "good times," but now by gradual reductions pay little, if any, more than half the amount, and still not satisfied, I should make no further abatement. I am beginning to think that rent reduction is a sort of fashionable epidemic, and that the more it spreads the worse is the farming. If a man with a thousand acres of land that, if well managed, would grow five or six quarters of Wheat per acre, cannot pay 25s. an acre and live, I believe five men with two hundred acres each can. The better the rents, in reason, the better is the farming as a rule, and it is a question if "reduction" is not in danger of being overdone. One great landlord has stopped it effectually by reminding his tenants that he had received no requests from holders of medium-sized farms for any further abatement. They will all farm better now.

BUT what has this to do with horticulture? It has a very great deal to do with it. If the rents of the large estates of this country are allowed to glide away to nothing, how is horticulture to be supported and high-class gardening to be maintained? For my part I like to see a flourishing aristocracy, the land worked well and capable of yielding more food and leaving a good margin for rent. That is surely not antagonistic to a rich mercantile community. Is it not rather the reverse? And does it not follow that the greater the proceeds from land or commerce the better are the emoluments of the wage-earning class? Amidst all the "depression" I am more "depressed" by the falling wage rate than anything else. If the millions cannot earn money to spend, general stagnation must sooner or later prevail.

I AM of opinion that bringing down wages to the lowest possible point is of benefit to no one, but acts prejudicially all round. What does it mean? It means less work—limited production. Taking the community throughout, if wages are reduced 5 per cent. the value of labour given in return will fall in greater proportion. Nothing can prevent this. However high the profession of individuals, or humble their calling, they give their services grudgingly or willingly according to emoluments. It is always better to face facts than to skirt them. If low wages were conducive to prosperity low wage counties would be the richer and high wage districts the poorer. Exactly the reverse is the case. And it is precisely the same with nations. So-called "cheap" labour, like "cheap" shoddy-made goods, which ought to be ticketed "bads," are dear in the end. The principle applies to gardeners, for I must not forget them. Thoroughly competent men, well paid, give in return their honest hearty services, never knowing when they have done enough; but the underpaid crawl their time over grumblingly, and these are the really unprofitable. Perhaps I shall not be able to make wage-payers believe this, but however that may be, I am convinced of the absolute truth of the statement, which is not made in the interests of a class but for the mutual benefit of all concerned.

I SHOULD now like to say what I think on another matter, which the experience of the year suggests as worthy of attention. It is an old habit that seems to need checking—the over-manufacture of gardeners. Now that so many labourers need employment it would be better that more of these be accustomed to do much of the work that is done by young men who, by-and-by, will find it difficult if not impossible to obtain appointments such as they desire, and who will either have to quit the country or take refuge in the army or police force. Why should men be trained for positions they can scarcely hope to fill, while at the same time labourers with families are only one remove from the workhouse? The rates are heavy enough now. A change in the direction indicated would be of benefit to all—to the young men who would be directed to some other field of labour, to village workmen longing for employment, to owners of gardens, and to ratepayers.

ONE way of limiting the manufacture of gardeners would be to abolish the premiums that students have to pay, compensation being made to those gardeners who have benefited by the "vested interests"—that is to say, where these have been enjoyed in lieu of additional wages. It is in that light they are regarded; but it is tolerably certain that the noble and the rich never think that young men or their parents are impoverished to defray the expenses of the establishments of the wealthy. I wish some nobleman would set the example of settling this matter equitably, and the few pounds of compensation he would pay would be saved twice over. When a gardener takes a premium with students he is almost obliged to keep them for a considerable time, however unprofitable they may be; he is bound by a custom that is economically unsound and ought to belong to the things of the past.

I WOULD next venture to bring under review for a moment another practice that is increasing and developing. A few years ago, when produce was sold from the gardens of the nobility and gentry, it was not done openly as a trade, but in a quiet unobtrusive manner. Things are different now. No secret is made of the practice, and numbers of gentlemen's gardens are in reality "market gardens," fruit, vegetables, flowers, and even trees being grown for sale, the gardener having a commission on

the proceeds to stimulate him in making money. Any nobleman or gentleman has a perfect right to do that. He can even feel the work is a benevolent one, inasmuch as he enables the inhabitants of the adjacent town to obtain better "garden stuff" at a cheaper rate than before. It is certainly better to sell what others want than to waste it. That must be conceded; but there is another aspect of the question. Since, say, £500 a year have been made out of a private garden, its assessment for rating purposes has not been increased one farthing; but if Brown by his frugality saves a little money and commences as a market gardener just outside the park gates, his assessment is increased with every greenhouse he builds, until eventually he is taxed 100 per cent. higher than his great rival, and mayhap a good deal more. Brown, who is struggling for a livelihood, is as, I think, unfairly handicapped by the greater burden he has to bear because of the exemption of his neighbour and powerful opponent in business. We hear a good deal about "fair trade" nowadays, but I do not call it fair for one of two persons, who are engaged in the same calling, to enjoy such an extraordinary exemption from local rates, and the other—he whose livelihood depends on his labour—to be correspondingly overburdened. As this is neither a personal nor a political question, it is eminently proper for discussion on its merits. But what is the use of opening it, it may be asked, without suggesting a remedy? Well, here is a proposal.

THE owner or occupant of every private garden who competes with regular traders in supplying the markets openly or in a semi-private manner with fruit, flowers, or vegetables should in my opinion be assessed, or at least his garden should, at precisely the same rate that regular trade establishments are in the same district. Against this it may be said the produce sold from one private garden may amount to £500, while that from another may not amount to a tenth of that sum. No matter. If a person does not like the extra assessment he has the remedy in his own hands—he can give up marketing; or, on the other hand, if he be willing to endure it and make the best of it, he can extend his operations. This private trading in Grapes, Orchids, and other things under exceptional circumstances is of no benefit except to those who engage in it, while it places a large class of regular traders in a most unenviable position, inasmuch as it, in effect, reduces their business and raises their rents. I know very well that gentlemen pay a tax that market gardeners do not—a tax on their gardeners as domestic servants. It would be better to abolish it in the case of those who trade, and thus place all on the same footing by an absolute equality of assessment than to leave open a grievance, that one class of the community is favoured at the expense of another. But I must pause.

I HAVE been obliged to observe what seems an absurdity during the past year—Apple trees groaning with fruit that could scarcely be sold at any price, while a month or two afterwards (and now) markets were supplied with American produce. Here is the humiliating spectacle of Apples being sent 3000 or 4000 miles to market while home-grown fruit is going a-begging. How is this? Simply that transatlantic growers have planted freely and exclusively the most tempting market varieties, while in this country there has been no systematic action in improving the supply of useful fruit; or at least it did not commence soon enough, and Britishers are, for the time, left behind their rivals in the competition.

MY thoughts have not run in a particularly cheerful groove so far, but things will come right in time, as they have come right before after worse periods than this. John Bull when rolling in rich pastures is apt to become lethargic, but he moves with persistent force when he is hungry. He is not in a moribund state, though temporarily depressed. He will brighten up by-and-by, rents will be firmer with better culture, and this will follow because it is a necessity of existence, trade will revive, and wages increase, and a more prosperous future is in store for those who shall labour and will be permitted to wait; at least such are the convictions of—A THINKER.

P.S.—"Current Topics" have had to stand aside for a consideration of greater and more general subjects, and in respect of recent episodes I can only thank Mr. Harrison Weir for the information that he objects to being referred to as an "individual." No one could, of course, have anticipated such an objection, and I certainly shall not employ the term again, or at least apart from the well-merited adjective "distinguished." The fact is, I have for years been a great admirer of Mr. Weir's talents, and have regarded him as one of the distinguished men of our generation.—A. T.

## PLANTS CERTIFICATED IN 1885.

MR. B. S. WILLIAMS.

FOR many years the Victoria Nurseries, Upper Holloway, have annually contributed largely to the novelties submitted to public attention, and so much care has been exercised in the selection that a good proportion have obtained prominent positions amongst the best of garden plants. Nurserymen contribute greatly to their reputation by judiciously excluding all novelties of doubtful merit from their lists; purchasers are saved much annoyance, and, indeed, are encouraged when they find they can rely upon obtaining something both new and useful. It is an important matter to secure the confidence of the public, in trade it is in fact the secret of success.

From the plants Mr. B. S. Williams has had certificated during the past year a dozen excellent novelties may be selected as worthy of special notice, and, taking them in alphabetical order, the first to demand atten-



tion is *Amaryllis Comte de Germiny*. This is one of the winter-flowering group obtained from crosses with *A. reticulata*. One handsome form of this type, Mrs. Garfield, has already secured much favour, which the *Comte de Germiny* is likely to share. It has flowers of good size, veined and streaked with rich crimson, and having a clearly defined white bar in the centre of each petal. They are borne on good heads on stout scapes, the leaves being much broader than *A. reticulata*, but with a white midrib. Plants are now flowering in the Holloway Nursery, and continue attractive for some months during the duldest season. All the plants of the type are thoroughly useful, easily grown, and flower freely.

Amongst the *Calanthes* a section is being formed of species or varieties that flower much later than the ordinary *C. vestita* or *Veitchii*, thus considerably prolonging the season during which their pleasing blooms can be supplied. One of the latest introductions in this group is *C. Sanderiana*, for which Mr. Williams has been awarded first-class certificates both at Regent's Park and South Kensington. It may be termed a highly coloured late *C. vestita*, but is much superior to most forms of that Orchid,

comes next in order, *Dendrobium nobile* var. *nobilis*, and although so much has been written in its favour it amply merits all the praise. The colour is exceedingly rich, far surpassing all other forms of this useful Orchid, and the flowers also are unusually fine in size and of good form. A trio of other good Orchids may be added to this—namely, *Lælia purpurata* Williamsi, *Masdevallia Harryana lateritia*, and *Odontoglossum hystrix magnificum*. The *Lælia* is a superb variety with flowers of great size, the sepals and petals crimson purple, the lip intensely rich dark crimson; it is one of the most magnificent *Lælias* in cultivation. The *Masdevallia* is remarkable for its glaring crimson colour, and the *Odontoglossum* for its beautifully formed flowers, brown tipped and marked with yellow.

*Hymenocallis macrostephana* is gradually becoming recognised in gardens as a useful stove flowering bulb, and its increasing popularity is no doubt due in a great measure to the specimens shown by Mr. Woodbridge, gardener at Sion House, who grows and flowers it admirably. The flowers are pure white, in the way of the *Pancratiums*, and are borne on stout scapes in umbels of good size. *Nepenthes Excelesior* is a hybrid



Fig. 1.—*DAVALLIA FœNICULACEA*.

the flowers being very bright crimson with broad lips. Two other notable Orchids are *Chysis lævis superba*, a grand variety with rich brown and yellow flowers in strong spikes, and *Cymbidium elegans*, which has long tubular yellowish buff flowers in dense pendulous racemes. The foliage is somewhat like *C. Lowianum*, and it resembles that in strength of habit.

Though not one of the certificated plants of 1885, a Fern which has previously received dual honours may be mentioned, more especially as its merits do not seem to be fully recognised at present by those who give particular attention to Ferns, but who can only have those that are free in growth and graceful in habit. This is *Davallia fœniculacea*, the Fennel-like *Davallia*, a most elegant, easily grown Fern, alike pleasing in a small or a large state. It is a native of the Fiji Islands, and produces fronds which at their full size are about 2 feet long and 1 foot broad, very finely divided and gracefully arching or Plum-like. As may be judged from its native home, it requires a stove temperature, but it is readily obtained in good condition, young plants being exceedingly useful for decorative purposes, reminding us of some of the more elegant *Aspleniums*. The woodcut with which Mr. Williams has favoured us truthfully represents a specimen of medium size.

Returning again to the plants of the present year, a famed Orchid

between *N. Hookeriana* and *N. Rafflesiana*, and bears abundant medium-size pitchers mottled with bright red, a useful Pitcher Plant to be recommended both for its habit and colour. *Pavetta montana* is a stove plant of shrubby habit, bearing clusters of white flowers in the axils of the leaves, and will be useful, as it flowers in a small state. To conclude our selection we may mention *Sarracenia Buchani*, a hybrid between *S. rubra* and *S. purpurea*, producing pitchers 8 inches high, with broad rounded lids of a dark red colour.

Nurseries are seldom very gay in January, but Mr. Williams has a number of attractions in his Orchid houses, and many more advancing, so that in the course of a week or two, with fine weather, there will be abundance of flowers. The general stock of fine-foliage and other plants is in as healthy flourishing condition as could be wished, while the increasing activity in all departments indicates the approach of the busy season.

#### TAR IN FRUIT HOUSES.

MANY years ago I had much difficulty in keeping early Peaches from being entirely destroyed by woodlice. Among numerous remedies I adopted tar, but, like others, did not eradicate the woodlice, and it was most



injuries to the Peaches which were ripening. I smeared the tar on paper and tacked it to any vacant spaces on the back wall, keeping the fruit and foliage clear. The flavour of the Peaches became so strongly impregnated by the tar that they were rendered worthless, and gave much disappointment, the family living at their London residence, and Peaches during June and July are much valued.

Referring to Rood Ashton, I have a distinct recollection, when living there as foreman, that the depredations of the wasps at the gardens was such as I never saw elsewhere, and not confined to one season, but each of the four seasons while I was there we had our patience most severely tried with the wasp pest. I fear that if I were to give the numbers of wasp nests which were destroyed in an area not very wide around the gardens my statements would be discredited. Morello Cherries (which I have seen finer at Rood Ashton than elsewhere), Red Currants, and other late fruits on walls, could not be saved but by carefully fastened hexagon netting.—M. TEMPLE.

## POTATO CULTURE AND EXPERIMENTS.

THE following summary of results of experiments made at Chiswick in 1884 and 1885, for the purpose of testing the efficacy of the system of "earthing-up" advocated by Mr. Jensen, was read by Dr. Masters, on behalf of the sub-committee appointed to carry out the experiments, at the last meeting of the Scientific Committee of the Royal Horticultural Society.

This official document, which was read on December 8th, did not reach us till after our pages were prepared for press on December 30th, which explains the delay in its publication.

THE experiments made at Chiswick for the purpose of testing the value of the Jensenian plan of moulding Potatoes as a preventive of the Potato disease were carried out in the present year in essentially the same manner as in the preceding year. A few slight modifications were adopted to facilitate the making of the record, and the tubers were placed at rather wider distances, the rows being now 4 feet apart, but these changes did not in any way interfere with the fair comparison of the results of the two years, the number of plants in each row being the same. The chief difference in 1885 consisted in the longer time the Potatoes were left in the ground. Thus in 1885 the longest duration of moulding was 118 days on section I. of each row, as contrasted with eighty-three days in 1884. The shortest moulding period in 1885 on section V. was sixty-two days, as compared with twenty-seven days in 1884. The Potatoes were examined on March 31st by the Committee, previous to planting, and all diseased and "suspicious" tubers eliminated. During growth they were inspected at stated intervals, and their condition noted. The season was for the most part warm and unusually dry, and no appearance of disease was noticed at any time on the haulms. On the 10th of October, the weather for some days previously having been wet, the tubers were lifted and carefully examined by Mr. Shirley Hibberd, Dr. Masters, and Mr. Barron. Two unmistakeably diseased tubers were noted during the uplifting on row 3 (Adirondack); and three on row 2 (Recorder). Others that appeared suspicious were sent to Mr. George Murray, who, after adopting appropriate methods of cultivating the fungus, reports that only one was really diseased. It should be remarked that the peculiar red spots in the substance of some of the tubers noted the previous year were not observed at all, though carefully looked for.

As the immediate object of the experiments has again failed in its fulfilment, owing to the slight development of the fungus, a detailed report seems unnecessary, though the documents are at hand for preparing it if thought desirable. A few general remarks, based on the results of the two years taken together, may be of interest.

1, The amount of produce under the varied conditions of the experiment.

2, The effects of long or short periods of earthing-up, and of not earthing-up at all.

3, The consequences of bending the haulms in the manner recommended by Mr. Jensen.

4, The results obtained from planting whole tubers and cut sets.

1, *The aggregate produce* from all the rows of Recorder in 1884 was 257 lbs.; in 1885, 254 lbs. 8 ozs., showing a decrease of 2 lbs. 8 ozs. in 1885, and a total amount for the two years of 512 lbs. 8 ozs. The corresponding figures in the case of Adirondack are 455 lbs. 9 ozs. in 1884, 434 lbs. 12 ozs. in 1885, showing a decrease of 20 lbs. 13 ozs. in 1885, and a total amount for the two years of 890 lbs. 5 ozs. Thus the actual produce of all the rows of each variety was so nearly alike in the two years as to be all but practically identical. On the whole there was a decrease in 1885, in spite of the tubers having been allowed to remain longer in the ground than in 1884. This decrease may perhaps be accounted for by the prolonged drought, but the close approximation in the amounts of produce in the two years respectively seem to afford an indication of the success of the method employed in carrying out the experiments.

2, *Effect of Earthing-up on the Amount of Produce.*—When the results of the two years are combined it comes out clearly (in the case of Recorder), under all conditions of growth, that the greatest weight of produce (irrespective of quality) was obtained from those sections (IV. and V.) which were earthed-up for the shortest time. Some of the largest tubers were met with in these sections, but mixed with a large number of smaller tubers, while their general quality was even and relatively bad.

The same general remarks do not, however, apply to Adirondack, which shows more variation in this respect, and in which the largest, as well as the best and most even tubers, were frequently found in those

sections which had been earthed-up for the longest time. It may be suggested that the results obtained show the probability that the process of earthing-up differs in its effects materially in the case of different varieties of different habit of growth, texture, &c. At any rate, it may be useful to call attention to this subject with a view to future experiments, the more so, as little or nothing is known of the relative effect of earthing-up on different varieties.

*Potatoes Grown Without Earthing-up.*—In both years four "control rows" were planted, two of each variety, the object being to afford a comparison between the Jensenian system of moulding and the natural condition of growth in which no "moulding" at all occurs.\*

The total produce for the two years on row 5 (Recorder, whole) amounted to 100 lbs. 4 ozs., an amount considerably in excess of the yield from any of the moulded rows of this variety (row 2, 84 lbs. 6 ozs.; row 8, 91 lbs. 13 ozs.). On row 11, where cut tubers were planted, the yield for the corresponding period was 87 lbs.—also somewhat in excess of the crops on the corresponding two rows subjected to moulding (row 1, 68 lbs. 1 oz., and row 7, 80 lbs.). The tubers on row 5 and row 11 were noted as much mixed in size; some of those on row 5 being much coarser and larger than on the other rows of the same variety, while many others found lying on the surface were green and small. They had also been the subject of insect attack and injury by slugs and millipedes to a much greater extent than the tubers in the other rows.

Of Adirondack left to itself the total produce of the whole tubers (row 6) for the two years was 186 lbs.—an amount greatly above the quantity on the corresponding moulded rows (row 4, 129 lbs.; row 10, 150 lbs. 14 ozs.). In the case of the cut sets (row 12) the total amount (for the two years) was about the same—viz., 182 lbs. 14 ozs., and also largely in excess of the corresponding moulded rows (row 3, 113 lbs. 5 ozs.; and row 9, 128 lbs. 6 ozs.). The same remarks as to quality apply to the unmoulded rows of Adirondack as to those of Recorder.

It is clear, then, that under all circumstances the actual produce was greater in the unmoulded rows, but that, while some excellent tubers may be grown in this way, the general bulk is much mixed, comprising numerous tubers unfit for consumption, but what might possibly have some advantage (so far as the plant is concerned) in point of physical health over those moulded-up. The small green tubers, for instance (if not affected by disease), might furnish stronger plants than those grown beneath the surface, while their noxious flavour might repel rather than attract predatory insects, &c.

3, *The Effect of Bending the Haulms or Otherwise.*—In each year two rows of each variety were allowed to grow without interference, while in other two rows of each variety the haulms were at regular intervals of time bent downwards. There was no opportunity afforded in either year of testing the value of this practice as a preventive of disease, but the average amount of produce for the two years from the erect and the bent tops respectively shows the effect of the check to growth occasioned by the bending. The average produce of the two years on rows 7 and 8 (Recorder, erect tops) was 81 lbs. 6 ozs., on rows 1 and 2 (bent tops) 76 lbs. 2 ozs.

The corresponding figures in the case of Adirondack are 139 lbs. 10 ozs. for the unent haulms (rows 9 and 10), and 126 lbs. 1 oz. for the produce of the bent tops (rows 3 and 4).

4, *The Effect of the Employment of Whole Tubers or of Cut Sets.*—In the control rows, as before stated, the greatest weight of produce of Recorder in both years was obtained from the whole tubers, the totals being 100 lbs. 4 ozs. on row 5 (whole), and 87 lbs. on row 11 (cut).

In the case of Adirondack, the total produce in the case of the whole tubers (row 6), = 186 lbs., shows only a slight excess over the yield from the cut tubers (row 12), = 182 lbs. 14 ozs. In 1884 the produce from the cut tubers (95 lbs. 10 ozs.) was slightly in excess of that from the whole tubers (91 lbs. 4 ozs.); in 1885, however, the balance is much in favour of the whole tubers—i.e., 94 lbs. 12 ozs., as against 87 lbs. 4 ozs.

The whole tubers of Recorder subjected to moulding in various degrees, yielded in the two years a total crop of 176 lbs. 3 ozs.—i.e., 91 lbs. 13 ozs. from erect, and 84 lbs. 6 ozs. from bent tops.

The cut tubers of the same variety for the same period supplied 141 lbs. 1 oz., = 80 lbs. from the erect, and 68 lbs. 1 oz. from the bent tops.

The whole tubers of Adirondack produced a yield of 279 lbs. in the two years, of which 150 lbs. 14 ozs. were yielded by the erect, and 129 lbs. by the bent haulms.

The cut tubers of the same variety yielded during two years a total of 241 lbs. 9 ozs.—viz., 128 lbs. 6 ozs. from erect, and 113 lbs. 3 ozs. from bent haulms.

In general terms it may be stated, as a result of these experiments, that (1), earthing-up produces a crop of more uniform and of superior quality, though less in actual quantity. (2), That bending the haulms occasions a diminished yield. (3), That a larger aggregate produce is derived from planting whole tubers than from the employment of cut sets.

[Elaborate tables are formulated, but as these merely give the weights of the produce of the different rows in pounds and ounces, proving nothing more on the main question than is given in the above excellent summary, we do not think the space of this Journal would be usefully occupied by their publication.]

\* It may here be noted that no special rows of Recorder or Adirondack were set apart and moulded in the ordinary way, because, for the immediate object of these experiments such a course was unnecessary, the experimental rows being contiguous to a large area devoted to the cultivation of numerous kinds of Potatoes in the usual way, so that had the disease appeared ample means of testing the effects of the ordinary, as compared to the Jensenian system, would have been afforded.





THE publication of the index for binding with the numbers of the last half-year compels us to hold over several interesting articles till next week.

— A WELL-KNOWN plant-grower, MR. WILLIAM COLE, died at Didsbury, Manchester, on the 26th ult. He was a skilful cultivator of hardwooded plants, and was for many years a successful exhibitor at Manchester and other leading shows. He had been latterly employed by Mr. W. Broome at Fairlawn, Didsbury.

— WE also learn that MR. WILLIAM KEMP, who had been thirty years gardener to the Duke of Northumberland at Albury Park, Guildford, died on the 23rd ult., at the age of fifty-five.

— THE DEVON AND EXETER HORTICULTURAL SOCIETY will hold their shows this year on the undermentioned dates:—Friday, 20th August; Friday, 12th November. The Trustees of the Veitch Memorial Prize Fund have allotted a Veitch Memorial medal and a prize of £5 for competition at Exeter in 1886, the competition to be confined to the county of Devon. The Committee of the Devon and Exeter Horticultural Society have resolved that the medal and prize shall be given for a collection of vegetables, to be competed for at their summer show (20th August).

— THE following are the dates of the meetings of the ROYAL HORTICULTURAL SOCIETY'S SCIENTIFIC, FRUIT AND FLORAL COMMITTEES, IN 1886.—Scientific Committee—January 12th, February 9th, March 9th and 23rd, April 13th and 27th, May 11th and 25th, June 8th and 22nd, July 13th and 27th, November 9th, December 7th. Fruit and Floral Committees—January 12th, February 9th, March 9th and 23rd, April 13th and 27th, May 11th and 25th, June 8th and 22nd, July 13th and 27th, August 10th and 24th, September 7th and 21st, October 12th and 26th, November 9th, December 7th.

— WE are informed that the STOKE NEWINGTON CHRYSANTHEMUM SOCIETY held a special general meeting on Friday evening last, at the Highbury Athenæum, Highbury New Park, the chair being taken by Mr. J. Hicks (one of the vice-presidents). The proceedings opened by the chairman reading the circular calling the meeting, which was in effect to consider the advisability of holding the next exhibition at the Highbury Athenæum. Letters were read from several gentlemen, who were all of opinion that if the next exhibition is held at this place it would be very beneficial to the Society. The matter was then freely discussed, and the following resolutions were agreed to—viz., 1st, That the Society should in future be called The Stoke Newington and Highbury Chrysanthemum Society, and that the next exhibition should be held at the Highbury Athenæum. 2nd, That the days on which the Exhibition should take place shall be the 4th and 5th November next. Another general meeting will shortly take place, when the rules and schedule will be entirely revised.

— IN reply to "J. R.," page 539, who asks for information on FILLING ICE HOUSES, "G.C., Caterham Valley," sends the following:—When in the gardens of Dysart House, Fife, in 1869, and at Broxmouth Park near Dunbar, I assisted in filling two ice houses, and the way we proceeded was to bring the carts to the house, and break the ice in pieces about 3 or 4 inches square, and then fill the house, three of us being inside with hammers breaking the ice as small as we could, in fact trying to fill every crevice, and when I went to see it in the summer it was in one solid mass. We filled the house and then filled the inside of the door with straw. Both these ice houses were built in the shape of an egg, sunk in the ground, and in places where the sun's rays had no effect on them.

— THE Executive Committee of the HULL AND EAST RIDING CHRYSANTHEMUM SOCIETY having in view the special object of the Society—viz., "To promote and improve the cultivation of the Chrysanthemum in the district," have considered it desirable to engage an expert to give a lecture on this subject. The Committee have therefore arranged for a lecture to be given in the Royal Institution, Albion Street, Hull, on Friday, January 8th, 1886, at eight o'clock in the evening, by Mr. J.

Udale of Sheffield. The syllabus comprises the following:—History (brief); Classification; Propagation; Cultivation—for Conservatory Decoration, Specimen Plants (including training Flat, Bush, Pyramidal, and Standard) Specimen Blooms for Exhibition; "Dressing;" Insects; Mildew; Select varieties for various purposes; Bouquets and Decorations.

— THE NATIONAL CHRYSANTHEMUM SOCIETY will hold an exhibition of flowering Chrysanthemums at the Royal Aquarium, Westminster, January 13th, when prizes will be offered in six classes "with the view of encouraging the cultivation of late-flowering Chrysanthemums." The classes are for twelve incurved blooms, six ditto; twelve Japanese, six ditto, twelve blooms any varieties, and for a collection of cut Chrysanthemums. The prizes, of which two are offered in each class, range from £2 to 10s. Many are curious to see what the result will be, as if a full show can be provided in the middle of January it will form a most welcome attraction at a dull season.

— A HORTICULTURAL CONGRESS is to be held in Paris from the 4th to the 9th of May next during the great International Exhibition, at which a number of topics in connection with horticulture are to be discussed.

— THE ORCHID ALBUM for December contains four particularly good coloured plates, not that the execution could be better than usual, but the subjects are very distinct. *Aeranthus Leonis* or *Angræcum Leonis*, as it is known in gardens, is well represented. The plant is a native of the Comoro Islands, at an altitude of 5000 feet, and was discovered by M. Léon Humboldt, who introduced it to Europe. It is dwarf in habit, with curved falcate leaves, and racemes of four to seven white flowers, which are freely produced. A superb plate is given of *Dendrobium nobile nobilissimum*, the grand variety which has become so famous. *Odontoglossum Insleayi splendens* is a wonderfully fine variety, the sepals and petals brown, the lip golden spotted with bright red. A faithful figure of the distinct *Miltonia Warscewiczii* is also given, the large lip being of a peculiar crimson hue with a lighter margin, the sepals and petals brownish and undulated and crinkled.

— MR. R. G. WATERMAN, Roseleigh, Woolton, Liverpool, sends the following note on THE RAINFALL OF 1885:—The rainfall in this district for the past year amounted to 34.75 inches. The heaviest fall during any one month was in October, which proved the greatest on record, the amount as registered by a 12-inch gauge being 7.30 inches. In the months of January, March, April, and August a fall of less than 2 inches was recorded. The heaviest rains of any twenty-four hours occurred on June 4th and December 30th, with falls of 1.02 and 1.10 inches.

#### THE WHITE BLADDER-BLOOM.

A SHORT time since we received from Mrs. Crowley, Waddon House, Croydon, a fine example of the fruit of *Physianthus albens*, or the White Bladder-Bloom, which had been forwarded to her from Cannes, and as the plant is little known in England we have had a woodcut prepared, showing also the flowers which accompanied the specimen in question.

*Physianthus albens* is a member of the *Asclepias* family, and was first described by Van Martius in his work on Brazilian plants from specimens which that botanist collected in the woods of Ypanema in the province of St. Paul's. Seeds were sent to this country in 1830 by Mr. Tweedie of Buenos Ayres, and the plants produced flowered freely in 1831, from which an illustration was prepared for the "Botanical Magazine" (t. 3201, 1832). A few years after examples of the same plant were sent to Lindley, then Editor of the "Botanical Register," with the statement that they had been received from Mexico apparently in mistake, as was explained when the flowers were figured in the work named (t. 1759, 1836.) In Decandolle's "Prodromus," vol. viii. page 533, this *Physianthus* is referred to the genus *Arauja*, which has been adopted by several authors since, with it being associated *A. sericea* (formerly known as *Apocynum Peruvianum*), *A. calycina*, and *A. angustifolia*, all natives of Brazil or neighbouring districts.

In cultivation the *Physianthus* has always been scarce, being confined to botanic gardens or a few private gardens where curiosities are prized. This is probably due to the fact that it cannot claim a prominent place on account of its beauty, though the white flowers possess a powerful fragrance, and when the plant is bearing its large twin fruits it is very remarkable. Like many of its relatives it is of twining habit, producing the white flowers in small stalked clusters (usually four each) from near the axils of the opposite bright green leaves. Before the corollas expand they have a curious inflated appearance, and to this it owes the generic name popularly rendered "Bladder-Bloom." The fruits are rarely produced under cultivation, and in the figures we have cited, which are the only ones known to us, this most characteristic feature is omitted from the absence of materials. When mature the fruit measures about 8 inches



from tip to tip of the two lobes, but occasionally only one of these is produced or becomes fully developed. The surface is curiously wrinkled or puckered, and when ripe it assumes a rich orange colour and is then very ornamental. It is probable that by artificial fertilisation these fruits could be more frequently obtained on cultivated plants, but as with other

#### EXHIBITING CHRYSANTHEMUMS.

MR. IGGULDEN asks my opinion as to admitting Japanese Anemones in a stand of Japanese. I write briefly to say that I should not countenance this. We must draw a line somewhere and keep to a certain stan-



Fig. 2.—THE WHITE BLADDER BLOOM, *PHYSIANTHUS ALBEUS*.

Asclepiads the method of fertilisation is strangely different from most plants, and a good idea of the arrangement of the organs can be obtained from a careful examination of one of our common hardy Asclepias.

dard for the guidance of future exhibitors. There is no mistaking the character of this new addition among the classes of Chrysanthemums. It is a distinct type, and recognised as such, by a separate class being pro-



vided for it in most schedules, so I certainly should not admit it as suggested by your correspondent any more than I should any other distinct type. Neither should I admit *Triomphe du Nord* and *Salteri* in the class for reflexed varieties. I thought it was now generally well known that *Empress of India*, *Mrs. Cunningham*, *Lady St. Clare*, and *Snowball* were all one and the same variety, and should not be allowed as distinct.—C. ORCHARD.

[We have a letter on the same subject from Mr. Molyneux which cannot be inserted this week.]

## FERNS—THEIR HISTORY AND HABITATS.

[A Paper read before the Paxton Society by Mr. J. G. Newsham of Sheffield.]

(Continued from page 587.)

IF the fibres of the roots, especially of our more robust varieties, are examined minutely, it will be observed that they form a great mass of thickly matted rootlets, the fibres being excessively numerous, and of extremely delicate formation. The roots throw out their water searchers to great distances, which render it necessary that the soil be rich, light, and unobstructive. It is therefore of the utmost importance that no cavity or vacuum should be allowed to exist, and that drainage should have special attention. Again, when rockwork is properly filled in less chance is given to snails, mice, and other pests to find lodgings. Spread a layer of soot and ashes, say an inch in thickness, on the ground. This will check the upward tendency of worms, and so prevent ravages among the fibres of the roots. Above this spread 2 or 3 inches of loose stone or broken pots, or even coke makes an excellent substitute. Next take the rough and fibrous parts of your soil, which must be all thoroughly decayed and spread over the drainage to prevent the soil being washed amongst it. I am quite aware that in most instances this simple precaution is neglected, but depend upon it, it is an important point. It prevents the upper parts of the rockery from becoming sour, and the lower parts from being soddened, thereby inducing a rapid growth of the fibres.

The foundation laid, next comes the selection of material for the structure. It would be utterly impossible for me to decide or even form any idea of what each person would fancy, but assuming that the plants are to form the chief feature of the rockery, it will be necessary to construct it in order to produce that effect. I should recommend the large cinders from our steel-converting furnaces to be used for the external parts. These may be dipped in a thin solution of cement, which will give them a much cleaner appearance. Let the interior portion of the rockery be well filled in as the work progresses. A few barrow-loads of brick ends mixed with the soil will help in keeping it open and promote a rapid growth. Being of a porous nature they will retain a certain amount of moisture to feed the fibres in case by accident the external parts become too dry. The soil must be composed of half loam and sand of a sharp nature, the other half well-decayed leaf mould. The best loam we can use is that formed by decayed sods.

Some authors recommend rich garden soil. This I consider is a folly. The richness of garden soil depends upon the amount of manure, or products of manure, which it contains at the time, and we are all aware that the richness cannot last long under constant use of the watercan. Garden soil is not, as a rule, fibrous, and therefore not suitable for the purpose. The loam I have named contains the decayed roots and remains of vegetable matter, which not only keeps sweet, but feeds the Ferns and encourages the roots to spread more freely. This when mixed with leaf soil is far more preferable than peat, because all Ferns will grow in it, whereas we find many of our British species which will not thrive well when planted in peat. For the upper parts of the rockery I should advise a variety of stone, in order to secure the geological requirements of the various species. Erect one corner, say, of tufa, which is an excellent substitute for the calcareous or limestone Ferns. Let the opposite parts be composed of sandstone, the old red sandstone if possible; this will accommodate another class of Ferns, and the centre of the upper portion pieces of rock from slate strata, or if you are not able to get this, you can easily obtain a few broken slates; stand them up edgewise a little apart from each other, and fill in with soil containing rather more sandy loam than leaf mould. Ironstone, gypsum, or grauite makes an excellent rockery for some of our smaller specimens generally found on old ruins.

In my experience of gathering Ferns I have noticed very particularly that *Scolopendriums* grow remarkably well in ironstone strata, and, generally speaking, are much inclined to sport or deviate from the ordinary type when found in these localities.

The arrangement of Ferns depends entirely upon the varieties at command.

"Plant behind plant aspiring: in the van  
The dwarfish, in the rear retired, but  
Still sublime above the rest, the statelier stand."

In all you do try to imitate Nature. No work, however elaborate and concise, can furnish information more trustworthy and more to be copied than this great teacher. Give the Marsh Ferns, *Athyriums*, Royal, and other Ferns the moistest places. Instead of giving you a list of Ferns you may grow, it will be better to enumerate the Ferns you cannot grow on outdoor rockery—that is, those of our British varieties.

British Ferns not suited for outdoor work—*Adder's Tongue* (*Ophioglossum vulgatum*), *Bristle Fern* (*Trichomanes radicans*), *Film Ferns* (*Hymenophyllum tunbridgense* and *Wilsoni*), *Maidenhair* (*Adiantum Capillus-Veneris*), *Naked Polypody* (*Gymnogramma leptophylla*), *Shield Fern*, *Alpine* (*Polystichum Lonchitis*, or commonly called *Holly Fern*), *Maidenhair Spleenwort* (*Asplenium viride*), *Rock Spleenwort* (*A. fontanum*), *Sea Spleenwort* (*A. marinum*), *Spear-shaped Spleenwort* (*A. lanceolatum*), and the *Woodsias* (*ilvensis* and *hyperborea*).

I will conclude my remarks on this mode of growing Ferns by just referring to the supply of water. Always syringe the rockery during dry weather at night. Never water over the fronds in the morning, if you do this the sun will quickly change the beautiful green tints for the yellow brown colour which gives such a forlorn and scorched appearance. Water at night allows sufficient time to thoroughly invigorate the plants and penetrate the whole structure, thereby preparing them for the dry atmosphere during the forthcoming day. By a due observance of these simple yet really necessary precautions, you will do much towards assisting your plants to a vigorous growth, and to supplying yourself with a source of real pleasure and enjoyment.

### FERNS UNDER PROTECTION.

We come now to a very large field for thought and discourse. Immediately plants of any description are placed under protection we relieve Nature of the responsibility, and take upon ourselves an important task. All their wants, means of sustenance, remedy against evils, pests, and all other contingencies rest upon ourselves. This is not less so with Ferns in order that we may enjoy their beauties during the long dreary days of winter. The constant care and regular attention required to keep Ferns in a vigorous and healthy state often wearies the cultivator. Thus that ceaseless force must be a genuine love for the plants grown. Under all circumstances bear this great point in mind, that Nature, and not books, must be your ideal. I do not wish to ignore the great value of our books, quite the contrary. Books point to Nature, and are the keys to knowledge. Cowper says:—

"Knowledge dwells  
In heads replete with thoughts of  
Other men."

But I advise lovers of Ferns to search for them in their native haunts, and thus become acquainted with their habits, the various soils in which they grow, the moisture they require, and the natural conditions under which they flourish.

Ferns may be grown in various ways under glass—in the greenhouse or fernery, either upon the rockwork or in pots; but by far most Ferns are grown in our houses in cases or under bell shades. Nothing gives me more pleasure than to see a neat Fern case well constructed, and not too full of plants. But how often do we see the reverse. Many a time have I noticed cases of this description, presenting but poor credit, and I would fain have knocked at the door of such houses and proffered a few useful hints to enable the owner to become more successful. One common fault is overcrowding, caused often by a wrong selection of Ferns, which when planted in the new, light, and spongy soil rush away to the top of the case, filling it with a dense mass of foliage. The roots in most cases crowd the pan, devour the most nutritious portions of the soil, and, as often is the case, suffer for want of support just when you fancy you have achieved success, puzzling the owner by a sudden collapse, which may sometimes end in the case being consigned to the attic to wait further orders. Choose the most suitable varieties to begin with, say of British the following:—*Adiantum Capillus-Veneris*, *Asplenium marinum*, *A. Adiantum nigrum*, *A. Trichomanes*, *Cystopteris fragilis*, *Polypodium Phegopteris*, *P. Dryopteris*, *Scolopendriums*, and *Athyriums*. When further advanced in the art of management grow the *Filmy Ferns* and *Killarney Fern*, or *Trichomanes radicans*. Select from this list and arrange them at distances a few inches apart, some raised above



others by the aid of small cups of virgin cork or other substances, others planted openly in the lower parts of the case, while a few may be suspended in small baskets either of virgin cork or cocoa-nuts cut in half. When the plants have grown to their full size the case will not be too crowded, and the beauty of each separate Fern will be maintained. Every third season, or oftener if the plants show any signs of failing health, carefully remove them and renew the soil; thus you will continue the beauty of the case without having so often to make purchases.

Many very pretty varieties of exotic Ferns may be grown in the Wardian case, especially among the half-hardy kinds. Most Fern vendors show such in their catalogues they send out, giving the temperature required by stating their native habitat. Bear in mind that it is almost useless to attempt to grow Ferns from the tropics in these cases; they require too much heat, and never look well long together. Select such as you can from America, New Zealand, New South Wales, Tasmania, Norfolk Island, and Australia. These are the most likely localities, using, of course, care in your choice, selecting only the dwarf varieties, not by carelessness planting a Tree Fern in your miniature fernery. The inventor of the Wardian case was the late Mr. B. M. Ward of London. To him we owe the existence of so many beautiful exotic Ferns. Those from the tropics could scarcely ever have reached this country had he not contrived this mode of bringing them over. In all cases, however, they were speedily removed from their prison to the stoves at Kew and other suitable houses as soon as they arrived. The idea of adopting cases of this description for permanent homes for some of the hardier sorts was happily taken advantage of to decorate our rooms and to add to our fireside pleasures.

(To be continued.)

## CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 558.)

### PROPAGATION.

STRIKING the cuttings of Chrysanthemums is an important item in the growth of these plants. There are various methods practised, some finding one to answer best and some another. As most persons like to know which is not the correct way to do certain



Fig. 3.

things as well as they like to understand the proper lines to follow, I will first describe the system I have found the best, and state the reason it is so. I will also detail a few other methods which are faulty, and consequently not to be recommended.

An idea largely prevails among the inexperienced that bottom heat is requisite for striking the cuttings. This is quite a mistake, as the application of heat at this stage tends to weaken the after-growth of the plants. They should be grown as sturdily as possible, never exciting them so as to unduly draw them up, particularly in the early stages. This is an important point to bear in mind. A great deal depends upon the quality of the growths to begin with. A weakly-grown cutting can be made to improve very much, but while that is taking place much valuable time is lost; therefore select thoroughly good cuttings.

Both good and bad cuttings are represented in the annexed engravings. No. 1 (fig. 3), as can be seen by the bloom bud in the axils of the leaves, is the wrong one. This was taken from the stem of a plant. No difficulty would be experienced in striking this cutting, but the chances are that before it had grown beyond an inch or two other bloom buds would form instead of growth shoots, and sometimes no shoots are produced, so stubborn is the plant to alter its course; therefore to take such cuttings as these is sheer waste of time. No. 2 (fig. 4) is the cutting to select. It was taken at some distance from the stem of the parent plant, and gives promise of free uninterrupted growth. They should be about 3 inches long, not too sappy, and cut square across below a joint. Stout suckers find favour with some growers—namely, growths that push through the soil and taken off when about 2 inches long with bristling roots attached. This is a simple method, and the plants may be grown quite as good as from the orthodox cuttings. One



Fig. 4.

objection only do I see to the sucker system—if the stock of any particular variety is scarce it obviously cannot be increased so quickly as if a cutting is severed above the soil, leaving a portion of stem to produce further growths. Some growers cut out the buds or eyes from the lower part of the cuttings to prevent the growth of suckers in the summer. This I do not consider necessary nor wise, because the production of suckers in a proper manner does not interfere with the well-being of the parent plant, and where is the stock of cuttings to come from for another season if such strict measures are taken to prevent their growing at all?

Having explained the kind of cutting to select, I will endeavour to make as clear as possible the best means of striking them. The best of all methods is under handlights, or in a propagating frame, placed in a house having a temperature of from 40° to 50°. These should be on the side stages, and as near the glass of the roof as possible, so as to prevent the cuttings becoming drawn. If handlights are not available boards affixed in the shape of a frame with laths across at suitable distances to support loose squares of glass will suffice. These home-made appliances answer the purpose well as long as they are air-tight or nearly so. Some growers strike their cuttings in a cold frame, but my reason for preferring a cool house is that much time is often lost in a frame through severe weather. I have seen them frozen hard in the pots for a fortnight. This will not kill them, but while they are in that condition they are not making roots, therefore must be losing time; and if they are protected from frost they must be sometimes covered for several days, which renders them liable to suffer from damp. Certainly they are more checked in this position than in a house where light is not obstructed, and if they are not subjected to frosts they are less liable to suffer from damp. Some persons strike them in pots on shelves close to the glass in an ordinary greenhouse, but in such a position they often flag very much, rooting is retarded, and time lost. They ought not to flag at all. Five or six cuttings are occasionally inserted round the edge of a 4-inch pot. They strike readily enough in this way, but when the plants are potted singly they receive too severe a check by the loss of soil from the roots during the operation of



separating them. When the cuttings are placed singly in small pots no such check can occur in shifting the plants into larger, as no disintegration of the roots or soil need take place. This I consider a sufficient reason why the cuttings should be inserted singly in pots. These should be about  $2\frac{1}{2}$  inches in diameter (inside measure), commonly called thumbs. Long narrow pots are the best, as the roots strike directly downwards, and a larger number of such pots can be arranged in a given space than others of the same capacity—wider, but not so deep. The pots should be perfectly clean.

When I say never use a dirty pot some persons may perhaps imagine I am too particular about little things; but it is by rigid attention to the smallest matters that the greatest successes are won. In turning plants out of pots that were dirty when used the roots cling so tenaciously to the sides that many are broken in the action of removing them. This does not occur when the pots were clean, but the plants are shifted with their roots intact, and do not experience the slightest check from the operation. One crock in each pot is sufficient for drainage, covered with a little rough decomposed leaf soil, or, what is handier, the rough pieces taken from the soil in passing through a half-inch sieve, which is necessary in using pots of this size. Fill the pots firmly with soil, the best for the purpose being composed of about equal parts of leaf mould and light loam, with a free use of coarse silver sand thoroughly mixed. On the top sprinkle a small quantity of sand, to be carried down with a blunt dibber for the cuttings to rest on, the rooting process being quicker among sand than soil. The soil should be pressed firmly round the cutting, particularly its base, and a gentle watering given through a fine-rosed waterpot to settle the soil and sand. Stand the pots on sifted ashes for securing a cool moist foundation and excluding air. The lights must be kept closed until roots are formed, with the exception that they may be taken off for an hour in the morning for the dissipation of excessive moisture, and in the evening the glass should be wiped dry. This in the dull days so often experienced at this time of the year prevents damping. Shading will not be required. In about a month some of the cuttings will be rooted. The strongest-growing varieties are the earliest to emit roots. A little air should then be admitted by tilting the lights slightly at first and increasingly until they can be safely removed. But while some of the plants need air the leaves of others will flag. This is caused by those particular kinds not rooting quickly and strongly. These should be removed to a frame by themselves, where they can be kept closer than those which do not flag and require more air to retain that stocky growth which is such an advantage. Through keeping the frames closed little water is required during the process of rooting, yet the soil must be kept sufficiently moist for the support of the cuttings or plants.

Another method of propagation is sometimes practised by persons wishing to save space. Soil to the depth of 4 inches is placed in a heated pit or on a hotbed, into which the cuttings are dibbled, keeping them closed till rooted. In this way they strike readily, but it is a system not to be encouraged, as the check caused to the plants in transferring them to pots is too severe, and the crowding in the bed also causes them to be drawn up weakly.—E. MOLYNEUX.

(To be continued.)

#### NOTES.

**PEA BLISS'S ABUNDANCE.**—I gave this Pea a trial in our orchard house early last year. I had about a hundred pots, six Peas in a pot, and fruited several good dishes from them. I found it as good, if not better, than American Wonder. Peas outdoors were not up to the average with me owing to the dry weather.

**CELERY WHITE PLUME.**—I gave this Celery a trial, but I find it will not stand the frost, and is only useful for early stewing purposes.

**POTATO EARLIEST OF ALL.**—This was very good, and of excellent flavour soon as dug. It was bought of Messrs. Laing & Co. along with the following, but was only used in the house this year. Laing's Standwell, a rough-skinned variety, also a good cropper and of excellent flavour, gave great satisfaction. For the table Cosmopolitan is also a good variety.

**GRAPES.**—I would like to hear if any of your correspondents have ever tried the experiment of grafting or inarching Gros Maroc on to a Muscat of any sort. I have a Mrs. Pince, which is not liked here, I thought of trying the Gros Maroc on this. What do some of our Grape-growing correspondents think.—A. J. B.

#### THE BLACK LILY—FRITILLARIA KAMTSCHATCENSIS.

THIS plant is generally known in gardens as the "Black Lily," an appropriate name, as the flowers are the nearest approach to that colour of any we have seen, not excepting the wonderful black Tulips we hear so much about. It is one of those which botanists are not at all agreed about; it has been put into no less than four genera—viz., *Amblyria*

*kamtschatcense*, *Sarana edulis*, *Lilium kamtschatcense*, affine, and *quadri-folium*, and the name given above, which is that now adopted and sanctioned by Mr. Baker in his "Monograph of Tulipeæ." It is the old Kamtschatka Lily of Linnaeus, under which name it is even yet found in the old gardens, where we not infrequently see large patches strong and healthy, which in a forcible way show what these bulbs are capable of doing when left alone. In the neighbourhood of London it never fails with an annual supply of bloom on a rockery having a northern aspect, and growing in ordinary garden soil. We have, however, heard of it deteriorating and finally disappearing, although our own experience is quite the reverse of this. One thing it seems more liable to than the majority of its class, although it frequently happens with *Liliums*—that is, a periodical breaking up of the larger bulbs; but although this takes place and it seems by no means regular, there are always a few large bulbs capable of flowering left to the next year. This may in a measure account for the deteriorating, and disturbing the bulbs by digging to see what is the matter may very readily complete the operation. If grown near stones not deeply embedded in the soil, they should be carefully watched, as the bulbs seem to have a tendency to run to the sides and underneath the stones, when we may get a glimpse of the foliage, but never any flowers. From its hardy nature this is one of the bulbs that should never be missed from a collection of hardy plants, as it will give as great satisfaction on a partially shaded border as on the rockery, the latter not always so easily attainable as the former. It grows from a foot to 18 inches high, the lanceolate leaves being in whorls much the same as in the old Martagon Lily. The flowers are bell-shaped, drooping, several in a head, of a deep shiny maroon black, with pretty golden stamens. It flowers in July and August. Native of Kamtschatka, Siberia, Japan, N. America, and California.—D.



#### KITCHEN GARDEN.

IN our directions for the coming season vegetables for exhibition as well as for home use will receive attention. Great county shows, and others of that character, often draw exhibitors from a distance, and these generally showing high-class produce set an excellent example to others; but village and parish shows were never so plentiful as they are now, and as fresh exhibitors are constantly arising, hints which will help them to increase the size and quality of their produce will be given in this column.

**TOMATOES.**—Early fruits of these are always valued. As a market crop they are very profitable, the price at any season is never unremunerative, and in early spring it is always good. The earliest fruit is to be had from plants raised from cuttings. Where these were put in during last October the plants ought to be placed in larger pots at once; use a mixture for them consisting of three parts loam and one part rich manure. Give them moderate drainage, and pot firmly, afterwards placing them in a temperature of 60° or 65°. Here they will soon commence growing rapidly, and the side shoots should be taken to form more cuttings. These will make fruiting plants sooner than any which can be raised from seed, but where no plants exist seed-sowing must be resorted to, and the first batch should be sown at once. Two dozen plants or so will make a good batch for early work, and to raise this small quantity the seed may be sown singly in 3-inch pots. Use rich soil, and place in a temperature of 65°. Keep the plants near the glass, and do not supply too much water until they have plenty of roots. Short sturdy growth is the kind to secure at this season, and particular attention must be given to growing them full in the light and near the glass. Last year we had a few old Tomato plants left in their fruiting quarters at the end of December. Early in January these were trimmed in and cleaned, then a rich surface dressing was added; growth soon began, and they produced ripe fruit sooner than any of our young plants.

**FORCING.**—Hotbeds should now be formed with the materials which have been collected for them. Make them firm, so as to retain the heat as long as possible. They must be at least 3 feet in height at the back and 2 feet at the front, and be 1 foot wider than the frame which goes on the top of them. Some time ago we had a long range of frames made, 4 feet 6 inches in height at the back and 3 feet in front. The fermenting material is put inside until within 10 inches or 1 foot of the top, soil is put on the surface, and Potatoes are planted in this with good results, the advantage being that the manure is all under cover and not exposed to the weather like an ordinary hotbed. The heat is retained for a long time in this way, and our early Carrots, Radishes, &c., are all produced in quantity from frames of the kind indicated. Sharpe's Victor Potato is a good one for present planting.

Early French Horn Carrot is the best for first crop, and French Breakfast Radish "bulbs" better than any of them in February and March. Attempts are often made to grow a mixture of Potatoes, Carrots, and Radishes in the one frame, but the plan is not commendable, as none of them ever come to any great degree of excellence, and a very inferior sample of all is the general result. We never saw Asparagus force so



profitably as it is doing this winter. Place more roots in heat to keep up a succession.

Cover more Rhubarb and Seakale; forcing will become easier daily, and those who have been holding back until the turn of the year may proceed at once. We find a few early dishes of the things named give great satisfaction in the kitchen, and although roots might prove a little more remunerative further on in the season, the produce will not be so much valued then. Keep up a constant supply of Mustard and Cress by sowing both every ten days or so. Sow a large batch of Cooling's Ne Plus Ultra Kidney Bean. The seed will soon germinate in a temperature of 65°, and the plants will bear heavily in March. In forcing these, as well as everything else, it is an advantage of the greatest importance to have the young plants in the full light and close to the glass. Where frost has been severe, Lettuce and Endive may have been injured, and the supply of salad in February and March may be curtailed, but where there is plenty of Chicory or Witloof roots in the open they may be made to form a good substitute if lifted in quantity, potted in groups, and placed in a dark corner where the temperature is from 60° to 70°.

**BROAD BEANS.**—A good sowing of these can now be made on a south border; Early Longpod is a very desirable variety. A rather heavy soil suits them best. We do not find Broad Beans much valued in summer, but a few dishes very early are always relished, and it is to secure these we advise sowing now.

Digging, trenching, and manure-wheeling should be pushed forward. All empty spaces in our garden are now turned up, and this in suitable weather we find facilitates operations considerably at sowing and planting time. Where there is a regular staff of kitchen garden hands work of this kind generally receives timely attention, but in smaller-sized gardens it is apt to be neglected until the last, when there is a great rush to dig and sow on the one day; and although this practice may answer in the case of some crops it is by no means a good system. Seed lists are now coming to hand daily; we always order early, with the object of having all the seeds at hand when they are wanted, and everything that is wanted for the season is got in at the same time. Standard varieties should be depended on and dealt with for main supplies.

#### FRUIT FORCING.

**VINES.**—*Early-forced Vines.*—Early-started Vines as a rule look very promising, having made good progress considering the weather. Those started gradually always produce more compact bunches and make better progress than when forced hard during the dark weather generally prevailing in December. Young canes that have been suspended over fermenting material should be tied to the wires as soon as the most backward buds have pushed freely from the rods. Disbudding must be gradually proceeded with, and young growths should be tied down before they touch the glass. Stopping is a matter of great importance. Some growers stop one, others to the third or fourth joint beyond the bunch, but where the Vines break and grow evenly we consider it preferable to stop them to the third or fourth joint beyond the bunch provided there is space at command, and after this allow the laterals to extend until sufficient wood is obtained to cover every available part of the trellis with fully developed foliage, when the strongest growths are again stopped to prevent overcrowding. As the bunches become prominent the house may be kept a few degrees warmer, or 60° at night, and 10° to 15° warmer by day from fire heat, or 70° to 75°, to 80°, with gleams of sunshine. Where fermenting materials are used on inside or outside borders attention must be paid to the temperature, which will not vary much where the border has been kept well covered with dry fern and shutters up to the time that a body of dry warm Oak leaves was substituted for the fern.

*Houses to Afford Ripe Grapes in June.*—The house must now be closed and the inside border supplied with water at a temperature of 90°. Syringe the rods twice a day with tepid water, taking care to wet every part of the buds and wood, allowing the night temperature to range from 50° to 55° on mild nights, and 60° to 65° by day with sun; but if the weather be cold and dull 55° by artificial means need only be maintained. As a means of saving fuel introduce a good heap of Oak leaves, to which one-third of short stable manure has been added; turn it frequently, and make additions as the heat declines.

Fruiting Vines in pots placed in or over fermenting materials may be kept warmer and drier as the bunches come into flower. Tie down and stop young growths, and afterwards allow them to grow until every part of the trellis is covered with foliage. Select thoroughly ripened wood for eyes, and insert in pots or sods at once; if for growing into fruiting canes no time should be lost in getting them into heat.

*Late Grapes.*—These must now be cut without delay, in order that the Vines may be pruned, cleansed, and allowed to rest. It will be advisable to dress the cuts with styptic, and when the Vines, glass, and walls have been properly cleansed the inside borders should be cleared of all exhausted mulching, and top-dressed with a thin layer of turf, loam, crushed bones, and rotten manure over all. The outside borders that have been covered all the winter may also be exposed to the influence of the weather, leaving a slight covering only of litter to keep out frost.

**CUCUMBERS.**—Plants must now be prepared for the early spring supply of fruit. All things considered, there is no variety equal to Rollisson's Telegraph for every purpose. The seeds may be sown singly in 3-inch pots, in a rich light mould, leaving room for top-dressing the plants when they require it, and plunge in a brisk bottom heat near the glass, and cover with a clean piece of glass, which must be removed as soon as the plants come up. Maintain a genial atmosphere with a night temperature of 65° to 70°, or 5° less in cold weather, running up to 80° or 85° with sun, putting on air at 75° just a little, to insure a change of

atmosphere, being careful to prevent a check by a sudden cooling or drying of the atmosphere. Tying, thinning, stopping, and arranging the shoots must be attended to as occasion requires.

**MELONS.**—Plants from seed sown now will give ripe Melons by the end of April or beginning of May, contingent of course on everything going on satisfactorily, and the weather is favourable to their growth. The seed should be sown singly in 3-inch pots, in fine loam and leaf soil, leaving room in the pots for top-dressing when the plants require it, plunging them to the rims in a hotbed made of fermenting materials and covering them with a pane of glass, which must be removed as soon as the plants appear through the soil. When they have made a couple of inches of growth they should be top-dressed, keeping them as near the glass as practicable without touching it, to prevent their becoming drawn. Should the frame be found full of steam when it is opened in the early part of the day, it will be advisable to provide ventilation at night to allow of its escaping, otherwise the plants will damp off. Where there is a Cucumber house or a fruiting Pine above, the pots may be placed on a shelf near the glass with a piece of glass over them, and then danger from damp will be obviated. In the matter of varieties, Davenham Early, Scarlet Premier, Eastnor Castle, and High Cross Hybrid are excellent.

#### PLANT HOUSES.

*Soils.*—Work in the various plant departments will soon be abundant, and every opportunity should be taken to place under cover the various soils needed, and to prepare them for use. Fibry loam being the staple soil for the majority of plants, a good stock should be placed under cover without delay. The heap of soil outside, if properly stacked at first and in a suitable moist condition, will be so at the present time, except, perhaps, a few inches of the outside, which may be rather wet. This, if well intermixed with the remainder, will be suitable by the time it is required for use. We frequently, however, keep this separate, and place it in the warmest and driest position in the shed, turning it once or twice before placing it with the main heap. It is a good plan to commence at one end of the stack, chopping it down from the top to the bottom, and by this means the turves are partially broken up, and in this condition they are placed under cover. This soil is then chopped as fine as required for potting purposes, on wet days or when other outdoor work cannot be done. After chopping we pass a good heap through a coarse sieve and remove all the soily particles, which is ready without further trouble for cuttings and other operations for which fine soil is required, the rough and fibry portions being placed in a heap for those plants that enjoy a loose open soil. It is surprising how rapidly the work of potting proceeds when a good stock of soil is ready for warming at any time when required, or to be placed direct upon the bench.

*Peat.*—This is much better outside, where heavy rains can be thrown off it until required for use, than in sheds and other positions where it will become dry. A good supply should now be wheeled in a shed and broken up at the first opportunity. We usually obtain two kinds of peat—the one for Orchids, and the other of a harder nature for hardwooded plants. The last is broken up with the hand, and all Fern and other similar roots removed, the fine being left with this heap as broken up. As the work proceeds any pieces of an inferior quality are placed on one side, both out of this kind and that used for Orchids, to be afterwards broken and used for Ferns. The Orchid peat is roughly broken, and the whole of the fine removed by passing it through a sieve. Peat fibre, from which all the soily particles have been removed, lasts in good condition double the length of time that it does when broken into lumps and the fine used with the fibre. The fine removed from this peat is always very useful for mixing with other soils to fill small pots in which the cuttings of many stove plants are rooted. It is also very useful for seedling Ferns as well as many other plants.

*Leaf Mould.*—For plant-growing leaves in a half-decomposed state, that have never been heated by being thrown into a heap, are decidedly the best. The leaves we use are scattered over an enclosed space in a small wood, and are frequently turned over by fowls; the layer of leaves is only about 14 inches in thickness, and never becomes heated. This is passed through a half or three-quarter-inch-mesh sieve in the yard, and all that does not pass through freely is left behind. A good quantity is placed under cover, and when mould in a finer state is required it is passed through a finer sieve when wanted for mixing with composts.

*Manure.*—In addition to the refuse of old Mushroom beds, which is principally used for Fuchsias, Caladiums, Begonias, and other similar plants, we rely entirely upon cow manure for all plants grown in pots. The manure to be used during the spring has been in a cool shed since the end of October, and stacked outside for some months previous. The supply for summer and autumn use is stacked outside, and will remain until room can be found for it under cover. The manure now in the shed is in capital condition, and before use is passed through a quarter-inch sieve. A good heap is sifted ready for use, but the majority was required. Those who have none under cover should get some in at once, or else it will not be in good condition for potting purposes. If very wet place it in baskets, or spread it thinly where it can be gently dried. Care must be taken that it does not become baked. When most of the moisture has been removed so that it will pass through a sieve, it should be placed in a heap in a cool shed and another lot dried. Bonemeal is very useful for potted plants, and the required quantity should be obtained ready.

*Wood Ashes.*—This in the compost for many plants is very beneficial, and all prunings should be laid together until a fair heap has been collected and then burnt. The ashes should afterwards be passed through a fine sieve, so that all unburnt portions of wood can be removed. The ashes should then be placed under cover and kept dry. Where wood



ashes cannot be obtained, soot mixed in the compost will answer the same purpose; in fact, we have principally to rely upon the latter, for we cannot get sufficient ashes for our requirements.

## THE BEE-KEEPER.

### PROSPECTIVE MANAGEMENT.

BEFORE the busy period is upon us it will be wise to consider the system that is likely to give most satisfaction both in the light of economy, profit, and securing suitable stocks at the end of the season. To those who are already supplied with hives no advice is necessary; but to those who are contemplating bee-keeping for the first time a little advice may not be out of place. Premising that all such have studied the hives most suitable to them, be they of straw or of wood, if the former are to be selected, let them be well made and of sufficient size. Efface from the mind the absurd idea that a hive suitable for one district is unsuitable for another. Intending bee-keepers should become fully impressed with the great importance of having nothing but full-sized hives, and of one uniform shape, in their possession.

Where frame hives are to be selected, we advise that preference be given to those put together by mortice and tenon before those that are nailed only. Simple single-cased hives, either nailed or dovetailed, if attention is paid to protecting them thoroughly from sun and wet by the use of some cheap material which may be gathered by the wayside, will give as satisfactory results as the most expensive hive made; and if a number of expensive hives I have had occasion to examine for a company of bee-keepers are a fair sample of others, cheap ones as above will give a great deal more satisfaction. The cardinal point to be observed in making cheap hives is that they be of one size outside measurement, so that they will fit into outside cases, which from their utility in bee husbandry will be found more easily managed than double-cased ones.

The locality alone must decide which is the better—the swarming or the non-swarming system. In some districts the honey season expires with the advent of summer; in all such places the non-swarming system should be strictly adhered to. But in districts where the season extends from the end of April till the end of September, then the swarming system will be found to be most profitable; yet to keep up the working powers of the top swarms till the end of the season it will be absolutely necessary to supersede the old queen by a young fertilised one within three weeks after hiving. By carrying out the swarming system thoroughly it will be necessary to have two-thirds more hives than are required for stocks during the winter, which adds considerably to the expenses of the apiary. By carrying out the swarming system thoroughly in a good district, and with a prolonged fine season, the yield of honey would be very great, as it is, indeed, in some parts of Lanarkshire, where it is carried out to the letter. But our variable climate sometimes puts a stop to “the best laid schemes” of the apiarian, and the yield of honey is almost nil, and better results would have been obtained had at least a portion of the hives been prevented from swarming. Nay, if the average of the past fifty years be taken it will be found that from the non-swarming hives the market has had the greatest supply of honey. It is with the bee as it is with other rural pursuits—controlled by the weather. The want of foreknowledge of what the weather is to be prevents us acting with any degree of certainty, but he will display his wisdom best who makes preparations, so that no chance will be lost, working and acting upon the principle that “a bird in the hand is worth two in the bush.”

There are districts, too, where the honey does not appear till August. To allow bees to swarm in such districts would be folly, or to divide them artificially during summer, and have to feed until the honey season appeared, would be a

case of “the cost o’ergoun the profit.” I am of the opinion that taking one year with another, and keeping the cost of extra hives in view, which must be kept if the swarming system is rigidly carried out, in the majority of cases the non-swarming system will give the most general and greatest satisfaction. The doubling of swarms will also be satisfactory, but in no case should a queen of the previous year be depended on till the season is advanced, but she should be deposed after it has been hived. The success of the apiary under any system depends greatly on the raising of young queens. One hive for every ten kept will be sufficient for raising the young queens required for keeping up the population of the hives.

The foregoing remarks will perhaps assist those not sufficiently experienced in apiculture as to justify them adopting a course which might turn out a ruinous one so far as profit is concerned. But before closing let me remind the youthful apiarian that though a capacious hive lessens the risk of swarming it does not prevent it. Swarming in many cases occurs with but partially filled hives. Young queens, in conjunction with large hives, are the best preventives against swarming. In all cases of lessening the size of the full-stocked hive let that be by removing supers only. The practice of lessening hives (unless weak ones) during winter might, for any good it does, be dispensed with. Certainly, large hives as a rule have both more empty and full combs. The former are doubtless in appearance more congenial to the bees, while there are always plenty of the latter within easy reach at all times, and which are termed “blocks of ice” by those who recommend crowding the bees into as little space as possible during winter, which by that very act leaves the bees without an alternative but to sit on what they characterise as blocks of ice! How often do we see bees located in the roofs of houses having an unlimited space, and yet do well too after severe winters! For some years now my hives have stood without the slightest contraction during the whole season, and nothing but benefit has accrued from the treatment. If kept thoroughly dry the bees are more rested during winter in a large hive than in a small and crowded one.—A LANARKSHIRE BEE-KEEPER.

### TRADE CATALOGUES RECEIVED.

Robert Veitch & Son, 54, High Street, Exeter.—*Catalogue of Kitchen Garden and Flower Seeds.*

Harrison & Sons, Market Place, Leicester.—*General Seed Catalogue for 1886 (illustrated).*

W. Leighton, 89, Union Street, Glasgow.—*Catalogue of Garden Seeds.*

George Bunyard & Co., Maidstone.—*Catalogue of Vegetable, Garden, and Flower Seeds.*

William Paul & Son, Waltham Cross.—*Catalogue of Vegetable and Flower Seeds.*

Frederick Roemer, Quedlinburg, Germany.—*Catalogue of Flower and Vegetable Seeds.*

J. Butterson, Hammonton, N.J.—*List of Small Fruits and Evergreens.*



\* \* All correspondence should be directed either to “THE EDITOR” or to “THE PUBLISHER.” Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.



**Privet and Fowls (R. H. J.).**—We are not aware that the leaves of Japanese Privet are poisonous to fowls. Birds eat the fruit of the common Privet with impunity, and the leaves have an astringent bitter taste. We have seen fowls bask under Privet hedges, and have not known any injurious results accrue from the birds pecking the leaves. If the experience of any of our readers differs in this respect we will readily publish it if communicated.

**Leeks (Tomlinson).**—It is difficult to form even an approximate estimate of the weight of a market bunch of Leeks, as early in the season there are only eight to ten in a bunch, while later there are fourteen to sixteen. You can now form an estimate as well as we can.

**Alterations (An Old Subscriber).**—Your having made the alterations to which you refer previous to the passing of the Agricultural Holdings Bill you do not come under the Act in question. If you are in trade as a nurseryman you can remove or sell your stock-in-trade, including the glass structures, on the expiration of your tenancy. The payment of rent determines the character of your tenancy in the absence of any written agreement. A six-months notice of quitance on either side suffices, to terminate at the time you took possession of the premises.

**Eradicating Weeds and Moss (Constant Reader).**—A quart of a pint of sulphuric acid mixed in a gallon of water and immediately poured upon the path will destroy all small weeds, so will an ounce of crude carbolic acid in the same quantity of water. A waterpot with a fine rose answers best for the work. Care must be taken not to let the acid touch the clothes or boots, or it will burn holes in them, and it will also kill Box or Grass edgings. Apply it in fine weather, and you will have no more weeds for several months. The acid can be had from any chemist or oil and colour dealer.

**Boiler and Pipes for Cucumber House (An Old Subscriber).**—The boilers you name and others similar are suitable for heating a Cucumber house. You will need four rows of 4-inch pipes for top heat, and if you have the fruit early you will require pipes for bottom heat, two rows on the flat under a bed 4 feet wide, the pipes 1 foot from the sides, surrounded and covered with rubble to a depth of 6 inches, and above this you will need a space of 12 inches for soil. If you have the bed we should only have two rows of 4-inch pipes close to the front for top heat, and have the other two at the side of the bed towards the interior of the house, or on the brickwork forming the edge of the bed.

**Temperature for Vines at Rest (F. J.).**—The temperature ought not to exceed 50° from fire heat whilst the Vines are at rest, but 40° to 45° is sufficiently warm for greenhouse plants by artificial means, and is the temperature that ought to be maintained. A valve ought not to be used for regulating the heat from the boiler unless there be more than one structure heated from the same boiler, then valves are necessary. What you seem to require is a damper so as to regulate the heat of the furnace, and consequently the heating of the water. Your boiler is too powerful or too hard stoked. Keep less fire, and regulate the draught by the ashpit door. Sixty is very much too high for Vines at rest, and is very prejudicial to greenhouse plants in winter. It is in fact a forcing temperature. Keep at the temperature named above. Coke is a preferable fuel for your description of boiler, breaking it small.

**Watering Vines in Winter (Merchant).**—As the inside border near the water pipes is "very dry," by all means give water copiously at once, and do not let the soil get so dry again. It is quite immaterial whether you remove the surface-dressing of manure or not. Probably you can moisten the border more effectually by raking it off, pointing up the surface of the soil lightly so that the water is evenly distributed, then replacing the manure. Possibly one watering may be quite inadequate, and two or three copious applications may be requisite; in this case the last may be with liquid manure if you have reason to think the soil has become impoverished. It is quite safe to water Vine borders in winter, danger lurking in allowing them to remain dry; and liquid manure, if it be needed, may be given with equal safety when Vines are resting as when they are growing. You may plant your Roses at any time when the weather is mild and the soil in a dryish, free-working condition. They may be partially pruned, removing a third or so in length of the shoots, pruning more closely in March or after fresh growth has started.

**Besi de Quessoy Pear (T. W. G.).**—The above is the name of your Pear, and it has seven other names. The following is the description in the *Fruit Manual*:—"Beside de Quessoy (De Quessoy; Besi de Caissoy; Poire de Caissoy; Petit Beurré d'Hiver; Roussette d'Anjon; Nutmeg; Small Winter Beurré; Winter Poplin).—Fruit produced in clusters; small, roundish, and fattened at the apex. Skin rough, with a yellowish green ground, but so covered with brown russet as to almost completely cover the ground. Eye open, set almost even with the surface. Stalk half an inch long, stout and thick, inserted in a pretty deep cavity. Flesh white, delicate, tender, buttery, with a rich aromatic and sugary flavour. A small dessert Pear, ripening in succession from November till March. The tree attains a good size, and bears abundantly as a standard, but does not succeed well on the Quince. The original tree was found growing in the forest of Quessoy, in Brittany. It is a very old variety, and is mentioned by Merlet.

**Stakes for Trees (Prince).**—The best we have used are of Larch, the young trees or the tops off them thinned from crowded plantations and divested of their side growths. We have found these to last longer than Oak, or any other wood, probably because of the turpentine in the Larch. Creosote is a good preserver of wood. It can be had from chemists, and should be used hot, the end of the stakes being placed in an iron vessel containing it over a fire and boiled. Some persons dip stakes in molten pitch, and others char them by inserting their ends in a fire for a time, then withdrawing them and slaking with water. This is a simple and good plan when well carried out; but whatever method may be adopted of preserving the wood it must be applied not to the points of the stakes alone, but 3 inches above the part inserted in the ground. Stakes decay more rapidly quite close to the surface of the ground than several inches below. We have been told that stakes soaked in petroleum are rendered additionally durable, but we have not tried it.

**Planting Anemones and Ranunculi (X. Y. Z.).**—Choose the first fine day when the soil works cleanly for planting your Anemones. They are best

planted in the autumn, but will do now. Draw drills across the bed 2 inches deep and 5 or 6 inches apart, and plant the tubers 5 inches apart in the rows. For choice varieties, a thin layer of sand scattered under and around each tuber will be useful. As soon as the bed is planted, cover the tubers with sandy loam from a basket or wheelbarrow. Take care that the tubers are placed the right side up, by observing the side that has the old small fibres on it. That side place next to the bottom of the drill. When all are planted and covered up the right depth (2 inches) then level the surface with a garden rake. The soil and preparation of the bed you describe will suit them very well. Ranunculi will all probably succeed if you mulch the bed in the spring to keep it moist, but they prefer stronger soil. The season for planting is in the early spring, as soon as the most severe frosts have passed and the ground has become tolerably dry. Some time about the end of February or the first week in March, rake the surface of the bed in the morning of the day previous to that fixed upon for planting. Some recommend steeping the roots for twelve hours in water before planting, but we think this not necessary, except the planting season has been from some cause or other put off till the middle of April; then it may be useful. Supposing, then, that the weather is propitious, and all things prepared, commence by drawing with a hoe a drill across the end of the bed, 1½ inch deep; if deeper the roots will be weakened the succeeding year, by forming a kind of stem nearer the surface; and if shallower, the plants are more liable to be struck with drought. Plant the tubers, if large, 4 inches apart in the row; if small, 3½ inches will be a sufficient distance, and cover them with fine sand. This will cause the tubers, when they are taken up in July, to come out of the ground quite clean for keeping.

**Names of Fruits.**—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. (*Pomo*).—The Apple Noir Binet is not grown in England under any other name. The American Apple has been called King of Tomkins County, but we do not think it is that variety. It is not easy to name foreign varieties from one specimen only.

#### COVENT GARDEN MARKET.—JANUARY 6TH.

Market quiet. Supplies falling off, with a better demand for good samples of Grapes.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	½ sieve	1 0 to 3 6	Oranges .. .. .	100	4 0 to 6 0
" Canadian ..	barrel	10 0 12 6	Peaches .. .. .	per dozen	0 0 0 0
" Nova Scotia ..	"	10 0 12 6	Pears, kitchen ..	dozen	0 6 1 0
Cobs, Kent .. ..	per 100 lbs.	27 6 30 0	" dessert .. ..	dozen	0 0 0 0
Figs .. .. .	dozen	0 0 0 0	Pine Apples English ..	lb.	1 0 1 6
Grapes .. .. .	lb.	1 0 3 6	Plums .. .. .	½ sieve	0 0 0 0
Lemons .. .. .	case	8 0 10 0	St. Michael Pines ..	each	2 0 6 0
Melons .. .. .	each	0 0 0 0			

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	dozen	1 0 to 0 0	Lettuce .. .. .	dozen	1 0 to 1 6
Asparagus .. ..	bundle	0 0 0 0	Musbrooms .. ..	punnet	0 6 1 0
Beans, Kidney ..	lb.	0 6 1 0	Mustard and Cress ..	punnet	0 0 0 0
Beet, Red .. .. .	dozen	1 0 2 0	Onions .. .. .	bunch	0 3 0 0
Broccoli .. .. .	bundle	0 9 1 0	Parsley .. .. .	dozen bunches	2 0 3 0
Brussels Sprouts ..	½ sieve	2 6 3 0	Parsnips .. .. .	dozen	1 0 2 0
Cabbage .. .. .	dozen	0 0 0 0	Potatoes .. .. .	cwt.	4 0 5 0
Capiscums .. ..	100	1 6 2 0	" Kidney .. ..	cwt.	4 0 5 0
Carrots .. .. .	bunch	0 3 0 4	Rhubarb .. .. .	bundle	0 0 0 0
Cauliflowers .. ..	dozen	2 0 3 0	Salsafy .. .. .	bundle	1 0 0 0
Celery .. .. .	bundle	1 6 2 0	Scorzonera .. ..	bundle	1 6 0 0
Coleworts .. .. .	dcz. bunches	2 0 4 0	Seakale .. .. .	par basket	1 6 2 0
Cucumbers .. ..	each	0 9 1 6	Shallots .. .. .	lb.	0 3 0 6
Endive .. .. .	dozen	1 0 2 0	Spinach .. .. .	bushel	2 0 4 0
Herbs .. .. .	bunch	0 2 0 0	Tomatoes .. ..	lb.	0 6 0 10
Leeks .. .. .	bunch	0 3 0 4	Turnips .. .. .	bunch	0 4 0 0

##### PLANTS IN POTS.

		s.	d.	s.	d.			s.	d.	s.	d.	
Aralia Sieboldi ..	dozen	9	0	to	18	0	Evergreens, in var.	dozen	6	0	to 24	0
Arbor vitæ (golden)	dozen	6	0		18	0	Ficus elastica ..	each	1	6	7	0
„ (common)	dozen	6	0		12	0	Ferns, in variety ..	dozen	4	0	18	0
Arum Lilies .. ..	dozen	12	0		18	0	Foliage Plants, var.	each	2	0	10	0
Azaleas .. .. .	dozen	24	0		42	0	Hyacinths .. ..	dozen	9	0	12	0
Begonias .. .. .	dozen	6	0		12	0	Marguerite Daisy ..	dozen	8	0	12	0
Bouvardia .. ..	dozen	12	0		18	0	Myrtles .. .. .	dozen	6	0	12	0
Cineraria .. ..	dozen	10	0		12	0	Palms, in var. ..	each	2	6	21	0
Cyclamen .. ..	dozen	12	0		24	0	Pelargoniums, scarlet, doz.	6	0	9	0	
Cyperus .. .. .	dozen	4	0		12	0	Poinsettia .. ..	dozen	12	0	18	0
Dracæna terminalis,	dozen	30	0		60	0	Primulas, single,	dozen	4	0	6	0
„ viridis .. ..	dozen	12	0		24	0	Tulips.. .. .	12 pots	8	0	12	0
Erica, various ..	dozen	12	0		24	0						
Euonymus, in var.	dozen	6	0		18	0						

##### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. ..	12 bunches	2 0 to 4 0	Lilium longiflorum, 12 blms.	9 0 to 12 0	
Acacia (Mimosa), Fr., per	bunch	0 6 1 0	Marguerites .. ..	12 bunches	3 0 6 0
Arm Lilies .. ..	12 blooms	6 0 9 0	Mignonette .. ..	12 bunches	3 0 6 0
Azalea .. .. .	12 sprays	1 0 1 6	Pelargoniums, per 12 trusses	1 6 2 0	
Bouvardias .. ..	per bunch	0 6 1 0	" scarlet, 12 trusses	0 9 1 0	
Camellias .. ..	12 blooms	3 0 6 0	Poinsettia .. ..	12 blooms	4 0 8 0
Carnations .. ..	12 blooms	1 0 3 0	Roses (indoor), per dozen	1 0 3 0	
Chrysanthemums 12 blooms	2 0 4 0		" Tea, French ..	dozen	0 9 1 6
" .. .. .	12 bunches	9 0 18 0	" red, French ..	dozen	3 0 4 0
Cyclamen .. ..	doz. blooms	0 4 0 9	Tropæolum .. ..	12 bunches	2 0 3 0
Epiphyllum .. ..	doz. blooms	0 6 1 0	Tuberose .. .. .	12 blooms	1 6 3 0
Eucharis .. ..	per dozen	4 0 6 0	Tulips .. .. .	dozen blooms	1 0 1 6
Gardenias .. ..	12 blooms	6 0 18 0	Violets .. .. .	12 bunches	1 0 1 6
Hyacinths, Roman, 12 sprays	1 0 2 0		" Czar, Fr., ..	bunch	1 0 2 0
Lapageria, white, 12 blooms	2 0 3 0		" Parme, French, per		
" .. .. .	red, 12 blooms	1 0 2 0			





### FARMING PROSPECTS IN THE NEW YEAR.

As the old year passes away and the new year opens before us we reach a period of time when events of the past and present are passed in review, and due thought is given to measures for the future. Well indeed would it be if past lessons could be so turned to account as to give point and certainty to future work; but, alas! we still have the agricultural depression upon us, and although there are some rays of light which give promise of a better state of things, yet there remains enough of doubt and uncertainty to bid us be cautious in all we do, and to take no steps either upon old or new lines without well considering the end.

A leading question much discussed during the past year, and which is still far from being settled, is, Can we afford to continue the culture of Wheat in this country? Yet the answer is simple in the extreme, and really merges into the answer to the wider query, Can we compete with the markets of the world, opened as they are to corn merchants by free trade? If land cannot be had at a rent proportionate to the price of Wheat it cannot be cultivated profitably, and therefore a reduction of rents is inevitable, and, so far as we can judge, such a reduction will be permanent and not temporary. With vast tracts of land under the fine climate of many of our colonies, with the great and ever-increasing facilities for carriage by land and sea, and the keen competition for freight between rival carrying companies, the farmers of Great Britain are put very much upon a level with those of that Greater Britain, as our colonies are sometimes inclusively termed. If, however, landlords bow to the inevitable, and rent is reduced, it certainly is the farmer's duty to do all that is possible with the land. We do not advocate extremes, but taking good sound common sense as the foremost qualification desirable in a farmer, we may assert that to practical knowledge he must now add sufficient scientific culture to enable him to obtain all the help he can from mechanics, entomology, botany, vegetable and animal physiology, chemistry, and accounts. Lamentable is the ignorance still to be found among farmers. It was only a week or two ago that we were told in open market by a man holding two large farms that cockles in Wheat was a mystery—a thing of seasons, coming and going in a manner inexplicable, that much Wheat had been badly affected by it last year! Yet the youngest of our pupils could have told him better. We have no faith in so-called mysteries, and science is fast sweeping away all the nonsensical ideas which have so long been handed down from one generation to another, and have in reality often been a source of serious loss.

Manual and horse labour will, and, in point of fact, are fast being reduced, every improvement in machinery and implements being a step in that direction. A few intelligent labourers with a thorough technical training will sooner or later take the place of the many old-fashioned illiterate labourers. Well has it been said recently that "Times have changed, and the farmer now requires fewer hands, must be far higher in intelligence than in the past."

Another important matter is the general wish to avoid those leeches who live upon the very life blood of farmers—the middlemen. There can be no doubt that advantage has been taken of Barley discoloration to press low prices upon the farmer, yet the price of malt to the consumer keeps high. Bullocks have fallen so in price that there is a loss rather than profit upon all inferior animals. Sheep, too, have also been very cheap, yet our butchers' prices have been sadly out of proportion. Fitful efforts have been made by several farmers to alter this, and we may mention one remarkable

example of recent occurrence. Colonel Briggs of Hylton Castle was only getting 4½d. per lb. for sheep, yet his labourers were paying 9d. per lb. to the butchers for mutton. By having sheep killed and sold to the labourers at 6d. per lb. he got 15s. per head more for his sheep, while there was a saving of 18s. per head going into the pockets of his men. Butchers' profits of 50 per cent. afford sure proof that in this as in many another case middlemen make far more profit than is justifiable. Middlemen are shrewd keen men of business—altogether too sharp for an easy-going farmer of the ordinary type. One farmer or a dozen cannot grapple with such an evil; there must be sensible combination to protect common interests, and it has been suggested that this is a matter for the serious consideration of our leading agricultural societies.

Trial stations, an extensive and ever-growing knowledge of the elements of plant food, pointing to an economical application of manures; pure seeds of the best sorts, an abolition of fancy prices, more general energetic action, more intelligence, and much less of paying money to middlemen for doing our work, and in many an instance cheating us. Bags of mystery are those wonderful compounds termed special manures, which are pressed upon us in such a tempting form, done up neatly in bags bearing the flourishing impress of the dealers' designations. How is it possible that a farmer can rest content with so unsatisfactory a state of things? Can he afford to purchase so-called manure adulterated with 50 per cent. of dust? Can he afford to purchase cattle food in the form of oilcake, that so frequently proves not only to be largely adulterated, but to be positively injurious to the animals it is given to? Can he afford to pay 1s. per lb. for mixtures of grass seed containing a large proportion of seed of inferior sorts not worth half the money? Yet he has done and is doing all this, and if the years of heavy depression serve only to eradicate all such grave faults, such loose practices, from farmers as a class, it will prove a blessing rather than a curse.

It may be that in this paper we have wandered somewhat from the literal meaning of our title, and instead of pointing out prospects and probable results, have dwelt rather upon matters affecting farming prospects. Yet these are all things pressing for careful attention, and we would once more press upon our readers the importance of intelligent inquiry into cause and effect, never resting satisfied with a vague imperfect understanding of what is passing around them, but striving for clear knowledge of everything affecting their work. With increasing knowledge will come that humility and teachableness that is not at all incompatible with self-respect. It will lead to better practice, better results, and will tend as much as anything can do to bring to them, as we heartily wish it may, a Happy New Year.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.


Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min	In sun.	On grass.	
1885-6.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Dec-January.										
Sunday .....	27 30.556	32.1	32.1	N.	39.1	43.4	30.0	48.8	23.0	—
Monday .....	28 30.047	41.3	39.4	S.W.	38.7	48.2	31.8	53.2	27.9	0.164
Tuesday .....	29 29.926	34.6	32.6	S.W.	39.2	39.8	33.2	55.4	27.5	0.014
Wednesday ..	30 30.170	29.9	28.8	W.	37.3	38.1	26.8	52.6	22.2	0.288
Thursday ....	31 29.903	44.7	43.8	N.W.	37.2	48.6	29.2	51.6	25.9	—
Friday .....	1 31.096	46.6	45.6	S.W.	39.0	49.8	46.0	52.3	37.8	0.030
Saturday ....	2 29.966	48.4	47.0	S.W.	40.4	51.3	45.3	55.5	40.2	—
	30.095	39.7	38.5		38.8	45.6	34.6	52.8	29.2	0.496

#### REMARKS.

27th.—Fog early, fine and bright after, foggy at night.  
 28th.—Dull and showery, with intervals of sunshine; evening wet and windy.  
 29th.—Bright and cold throughout, snow showers in evening, frosty night.  
 30th.—Bright and cold morning, dull after, with slight fog; wet evening.  
 31st.—Dull, warm, and hazy throughout, shower about 2 P.M.  
 Jan. 1st.—Dull and damp all day.  
 2nd.—Fine and warm.  
 A dull and rather damp week, with a good deal of mist and fog. Temperature slightly above the average.—G. J. SYMONS.





## COMING EVENTS

14	TH	Royal Society at 4.30 P.M.
15	F	
16	S	
17	SUN	2ND SUNDAY AFTER EPIPHANY.
18	M	
19	TU	
20	W	Society of Arts at 8 P.M.

### HEATING AND PROTECTING.

**W**INTER has come, to London at least, in a manner that cannot be mistaken. The earth at the time of writing is shrouded in snow, and no one knows how low the mercury will fall in the thermometer in twenty-four hours; and if it rises, as it may do suddenly, it would be very unwise to assume that the winter is over. So proverbially changeable is our climate that gardeners ought never to be taken by surprise. They should always be prepared for a variation of 50° in the daily range of temperature. If there is no such difference all the better, but the fact that the range is often considerably greater proves the possibility of its re-occurrence. The direction of the wind, the character of the clouds, the movements of the barometer and thermometer, should all be observed thoughtfully; then generally, but not always, the nature of the weather can be anticipated during the coming eight or ten hours, and in this case no great extent of mischief need be done when means are afforded for its prevention. It is when the means are at hand and not applied that there is so much cause for regret not only for injury that may be done, but for the disquietude of mind that either is or ought to be endured on the part of a delinquent, as there cannot be a doubt of its existence in the minds of those who have in a great measure to trust to others for the execution of important duties.

Young men especially should be on the alert against weather surprises, and should never leave their post of duty so long as a doubt remains as to a safe method of procedure. By an hour's indulgence he had no right to claim, the character of a man for trustworthiness may be lost, and will assuredly be hard to regain. Indeed, the prospects of many a steady, industrious, but somewhat indolent and unobservant youth have been destroyed in a night or an hour. He may have retired too soon or rested too long, and the mistake has influenced prejudicially his whole career.

It is not in times of peace that soldiers win honours and promotion. It is in troublous times that their qualities of watchfulness and endurance are tested. It is precisely the same with gardeners—young men who are entrusted to a great extent with the success or failure of the “coming campaign.” Early forcing and bad weather are the opportunities for gardening students to distinguish themselves, and the earnest, attentive, and thoughtful do not fail to turn them to account. Keeping out frost in one case, and keeping up the requisite heat in another, are matters in which no man should permit himself to fail if they are within the bounds of possibility.

A great secret of success is in taking pride in the work in which it may be a person's duty to engage—not in that part only that can be most agreeably performed, for in this neither effort nor sacrifice is required, but in the less fascinating but not less important portion of his duties. It is perhaps quite natural that many young men should delight in furnishing artistically and satisfactorily a drawing-room jardinet, and if this is part of their work they ought to deter-

mine to excel in it; but unless such men take equal pride in the orderly and thoroughly workable condition of a subterranean stokehole they are very seriously at fault, and their shortcomings will sooner or later tell seriously against their advancement. If a person make himself trusted for doing well the work that is out of sight he will not be very likely to neglect that constantly under inspection. “Once upon a time” I was told on good authority that when a gardening appointment was made which many coveted, an individual was selected mainly because the stokehole in his charge was found to be in such perfect order. It was considered that a person so careful and systematic underground not only permitted no waste there, but was not likely to fail on the surface. Experience justified the soundness of the reasoning.

A well-managed stokehole should be always “fit for company.” A clean floor, clear ashpit, free bars, with doors, dampers, valves, clean also, and in perfect working order; and another matter, not sufficiently attended to, should never be overlooked—a clean boiler. Not only should no obstruction be permitted in the flues, but not the slightest incrustation of soot should be allowed on the boiler. Even an eighth of an inch of carbonised matter there will involve the consumption of as much fuel for its penetration as would heat all the water in the apparatus. These are not the days for wasting fuel. Boilers well set and the connections good act well or the reverse according to the way the former are managed, and many an apparatus, good in itself, has been unjustly condemned.

The competent man—he who maintains the requisite amount of heat with apparently little trouble, uses as a rule much less fuel than one less successful with the temperatures and who rushes about and blazes away as if he were doing the work of two or three men. When the work of such an one is examined it is certain to be faulty in some of the points indicated; and in another thing he fails, and it is a far too common occurrence—he starts too late in the afternoon and not soon enough in the morning. A thousand head gardeners who will read these notes know that to be true.

A house of winter Cucumbers may be taken as illustrative. The temperature at ten o'clock at night ought we will say to be 65°, falling a few degrees, but not below 60° at daybreak. The day proves bright, and the sun, with heat in the pipes, raises the temperature before midday to 80° or 85°. In the afternoon it commences falling, and the thermometer registers 75° at three o'clock or a little after, and in half an hour it falls to 70°. By that time the pipes are cold, or nearly so, and the fire is started; but before the water is appreciably heated the mercury falls to 65°, and is still descending, reaching 60° by 6 P.M., if not sooner. In the meantime an almost frantic endeavour is made to arrest the fall, fuel is thrown on, stirred to consume it as rapidly as possible in producing fierce flames; if half a pound of candles are handy in they go, or half a pint of petroleum—anything to raise the temperature. And all this excitement and attendant waste is caused by not starting the fire soon enough. The moment the temperature from the sun decreases that of the pipes should commence, and increase steadily to check any sudden fall—in fact, the fire should be the master half an hour before sunset, then the fall to the ten o'clock minimum can be regulated to a nicety, with much less than half the consumption of fuel that is required to “raise” the heat that ought never to have fallen so low. This mistake of not starting fires early and gently is not only wasteful but often dangerous, because very frequently it ends in overheating at midnight, and the air of the house becomes so parched as to be inimical to the well-being of the plants.

Starting the fires too late in the morning is a practice equally to be reprehended because equally wasteful and injurious. If the attendant is at his post at six o'clock, or sooner if needed, to stir the fire and prevent the temperature falling below the daybreak minimum, he is master of the position, for if the day promises to be dull he can easily raise the tem-



perature a few degrees by nine o'clock, while, if bright, he meets it with moderately heated pipes; but, on the contrary, if the fireman runs with half his clothes on, and boots unlaced, at seven instead of six o'clock, and finds a temperature of  $55^{\circ}$  instead of  $60^{\circ}$ , fierce firing at once commences to raise the heat, and just when the pipes are "burning hot" the sun is on the house and the plants are between two fires. The heat cannot be kept down except by extreme ventilation, and this cannot be afforded without drying the atmosphere of the house and inciting such extreme transpiration from the foliage that renders it peculiarly inviting to the attacks of red spider; and no one can grow Cucumbers or anything else well, and red spider too. Heating is a very important matter, and the secret of success may be expressed in three words—be in time; economy then goes hand in hand with efficiency, and this combination is a credit to the man by whom it is achieved.

So much, but not too much, having been said on the subject of heating, there is little space left for that of protection, and it must suffice to say that not half enough attention is given to preventing the radiation of heat from glazed structures by the use of blinds. Fire is used, and must be used to produce heat, but as a rule slight endeavours are made to conserve it. Blinds are necessary in summer to keep the heat of the sun out of houses, and for that purpose are extensively employed; but while they might be still more profitably used in keeping the heat in the structures in winter, it is very seldom we find them thus saving fuel and maintaining an equable temperature. In nurseries, and especially on the continent, where it is necessary to practise the most rigid economy, blinds are drawn over glazed roofs during cold nights in winter, as well as on hot days in summer, but there is no such general practice in private gardens. If blinds can be supported an inch or two above the glass instead of resting on it, they are more effectual both in summer and in winter.—EXPERIENTIA DOCET.

### THE FUTURE OF GARDENING AND GARDENERS.

MR. TAYLOR having thoughtfully hoisted the gardeners' flag of distress, we should, I think, be lacking in courage and circumspection if we did not carry it round, exhibit it to our friends and neighbours, asking their opinions and advice, so as not only to discover what are the real causes which have led to our forlorn condition, but also be able the better to realise not only what our present position is, but also what are our future prospects. The question "What is to become of our great private gardens and our army of professional gardeners?" is at this time very suggestive and pertinent, but is not very easily answered.

That private gardens, with a few fortunate exceptions, are at the present time under a heavy cloud is unquestionable, and while that cloud overshadows them the gardeners' position must remain either unchanged or become even worse than it now is. The very fact that the garden and the chief part of its products are not essential luxuries to the wealthy classes, although they may be their greatest, as they are also their most wholesome and enjoyable pleasures, is sufficient cause why the garden should in unsettled and adverse times be the first to suffer for want of support. For gardens and gardeners to flourish it is highly essential that the commerce and trade, as well as the agriculture of the country, should be in a thriving and healthy condition. Bad seasons and depression in agriculture, however, are not of themselves sufficient to account for the continuance of this overhanging cloud at the present time, but there are greater, wider, and in some respects more deplorable causes, which I imagine are not proper subjects for introduction to your columns.

It may, however, be said with safety and propriety that the wealthy classes, as a rule, are not niggardly when times are flourishing, when landed and other property is comparatively secure, and when there are no disturbing influences prejudicing their future stability. At the present time it is not money probably that is so much required as it is, let us still venture to hope, the temporary absence only of that good old English feeling of kindness and good will towards each other, that genuine feeling of friendship between the upper and lower classes, for which England in the past has been so distinguished, so justly proud, and which has undoubtedly contributed in no small

degree to her prosperity, as well as to her proficiency in the science to which we are devoted. In times of difficulty like the present masters in their perplexity are too apt to place undue pressure on those whom they have engaged to occupy positions of trust and responsibility. They somewhat unreasonably demand equal, or even increased results at considerably reduced expenditure, and the outcome, as Mr. Taylor infers, is too often failure, in which the gardener is comparatively the greatest sufferer, because he not only frequently loses his position, but too often that also which is of more value to him, his character as a gardener. This cause of annoyance to the master, and most deplorable termination to perhaps, in many instances, a long and honourable service on the part of the gardener, might often be avoided if the master would only exercise a little more judgment, discretion, and self-sacrifice, by permitting a portion of the most unprofitable and expensive part of his garden to be converted, for the time being, either into woodland, game cover, pasture, or to any other purpose which might be deemed most convenient and profitable.

On the other hand, the gardener's bounden duty is to readily conform to altered circumstances, and endeavour by every means in his power to carry out his master's instructions, instead of, as sometimes occurs, foolishly and uselessly combating what he conceives to be the erroneous determinations of his employer. It is the acknowledged privilege of those who "pay the piper to choose the tune." This line of action must, I think, be right because it is reasonable. "As to what is to happen after the next move or two in the same direction," as Mr. Taylor significantly puts it, I know not. I would rather say, "Sufficient for the day is the evil thereof." True prophets are very rare in these days; even our greatest philosophers, who have essayed to foretell coming events, have been but false teachers. Let us, therefore, not suppose by looking on the dark side only that the next move or two will be in the same downward direction, but rather let us hope and believe that they will have an upward tendency, that better times are coming. After the storm comes the calm, after the cloud the sunshine. It is not the first time even in my recollection that gardeners have had similar trials to endure, although I must admit the present trial is a painful one, and must surely prove a severe check to the progress of our ancient profession; but that the day will come, I trust soon, when with the revival of trade and agriculture, when with a better understanding between master and servant, when a better and more united, a more affectionate feeling will be manifested between all classes throughout Great Britain and Ireland, when everyone will be induced to look rather to the performance of his duties than to the possession of that which he conceives to be his rights, when the servant will be more content with the position which Providence has assigned him, and when, on the other hand, the master will be less selfish, less exacting, less suspicious, more considerate, more just to those in his employ; when also, by the passing of judicious land laws, the owner and the occupier will each feel safe to invest his capital with ample security, and with every confidence that it will be safe from the intrigues of misguided agitators—then, and not till then, I fear, will gardening and gardeners again flourish with increased vigour.

There is no lack of taste for gardening, but the very opposite is the case, and while this continues to be so it will eventually revive. Unfortunately there are great numbers of excellent gardeners and young journeymen at the present time who are by this lamentable depression thrown out of employment, as every nurseryman throughout the country can testify, many of whom are unfortunately simply existing rather than living, and for their sakes it is very desirable that gardening should revive.

Never was there a time, perhaps, when the necessity of a Gardeners' National Relief Fund for the unemployed was more felt than it is at the present. Had but the wise and timely suggestions which emanated from the generous heart of the late Mr. T. Speed some years ago, when at a Manchester show, been then actively and generally adopted, when gardening was in a flourishing condition, there would have been at the present time an accumulated fund sufficient to have met the immediate and pressing wants of our unfortunate brothers. It does seem strange that professional gardeners have never combined generally to form a special fund similar to that mentioned. While every other trade and profession have some such organisation, gardeners, although from the peculiar nature of their calling they should be far-seeing and provident, and although they are acknowledged as a class to be fairly intelligent, temperate, prudent, and generous, yet they have hitherto failed to combine nationally for each other's benefit. It is true there exists the "Gardeners' Royal Benevolent," the "United Horticultural Benefit," and other local societies, but the funds of these excellent institutions are wholly or chiefly intended to benefit the



aged and infirm; they do not give that help which is now so much needed, nor form that connecting link between active professional gardeners of all grades and ages which is so desirable, especially in such unfortunate times of depression as the present. The only hope of a discharged gardener now, unless he be possessed of means, of which there is but slight chance, is on the nurseryman; and although these gentlemen have always shown the greatest sympathy towards gardeners in distress, still in times of depression like these they cannot do impossibilities nor find employment for all; the consequences are, I am grieved to say, many cannot find suitable situations, and are often reduced to very painful circumstances. Experienced gardeners are sometimes compelled either to comply with most miserable and unjust conditions, or else undertake elsewhere such service or work for which they are totally unfitted, and they unfortunately sometimes lose courage and self-respect, hope gives place to despair, and they sink deeper and deeper in the social scale. How many of these there are who with a little timely help, such as an institution like the one suggested might have afforded, could have been kept from sinking, perhaps started in a small but suitable business, and thus been enabled to gain a decent living instead of being reduced to semi-starvation. I must apologise for this lengthy and somewhat gloomy epistle at the commencement of a new year, but knowing that your columns are always open to any suggestions intended to improve the gardener's position I venture to send it, sincerely trusting the dark cloud will soon pass away, and that the new year's sun will quickly shine with more brilliancy on gardens and gardeners than has that of the past year.—T. CHALLIS.

### ROSE MILDEW—NOTES ON GYPSUM.

ABOUT a year ago there was a discussion in your columns on Rose mildew, and I suggested that gypsum should be tried as a remedy. If anyone else has tried this it might do good if they would state the results, whether adverse or beneficial, so as to see whether it is worth using. We are all learners. For my own part I have been almost free from mildew on Roses, but would not like to say it is due to the gypsum unless the fact was corroborated by others.

It may perhaps be interesting to state the results when applied to other plants as a manure. I gave a dressing to all the usual kitchen garden crops, but could see no difference in those parts of the rows where it was applied than where they had none. The same with Gooseberries. Where it was given to young Black Currant bushes they did not seem to grow so well.

The most remarkable effect was on a bed of Gooseberry cuttings. As far as the gypsum went a great many more of the cuttings died than where it was not applied. It was seen quite easily to a few inches how far it had gone. The extraordinary fact was that where the gypsum was sprinkled over the ground after the cuttings were inserted it was most hurtful, although it was not in such proximity to the roots, but where it was dug in before the cuttings were inserted it did least harm. With Red Currant cuttings in the same place it had no bad effect, there being scarcely a blank where the gypsum was in the soil and where they had none, notwithstanding the very dry season, and when we dug some up the roots appeared to revel in it.

Where the gypsum was sprinkled over the ground I frequently noticed that the ground looked damp as if it had had a shower, when elsewhere it was dry. Knowing that gypsum was supposed to yield moisture in dry weather I rejoiced over this, thinking that the gypsum had an affinity for moisture, and drew it from the atmosphere, and that it would be beneficial to the Gooseberry cuttings, as the summer was so dry. I now think that it must have subtracted moisture from the ground, which had a contrary effect.

**SNOWDROP POTATO.**—On the recommendation of "A Kitchen Gardener," vol. x., p. 167, I planted this new variety of Potato, and can endorse all that he said about it. It is a heavy cropper of first-rate quality, has shallow eyes, is of good appearance, very floury, and of a beautiful white colour when boiled. I did not find any diseased tubers among them. It is a second early kidney. What more can be desired?—W. KRUSE.

**P.S.**—I have been trying twenty-four varieties of Strawberries for three years, in order to see which are the most profitable, &c. If you thought it desirable I would send you the notes I have taken on them the last two years if I can find time to arrange them.—W. K.

[We shall be glad to receive the notes obligingly offered.]

### CELERY CULTURE IN NOTTS AND YORKSHIRE.

CELERY-GROWING within the last seven years has become quite a business in North Notts and South Yorkshire. In the neighbour-

hood, within a radius of ten miles of Bawtry, 25 acres of land sufficed for the crop in 1878; but during the past year, 1885, upwards of 400 acres were devoted to Celery. The variety grown is called the Clayworth Pink; it was raised in the village of Clayworth, and is a most excellent sort, being good in most kinds of soil. The land in the parishes of Everton and Hayton where Celery is grown is peat or bog; in the parishes of Clayworth, Wiseton, and Gringley-on-the-Hill the land is strong loam. Peat with a clay or cool subsoil answers better for growing Celery than stronger land. Most kinds of crops exhaust the soil—Celery improves it. The second year is better than the first, and so on—that is to say, the land requires less manure the third year than the first, and is much easier worked. Celery taken up the first year weighed  $2\frac{1}{2}$  stones per bundle of twelve roots, and after seven years' cropping the weight per bundle of twelve roots is  $4\frac{1}{2}$  to 5 stones, sometimes more—not merely one or two bundles, but row after row as taken up. The land where this is grown is peat with a clay subsoil.

The seed beds are prepared in January and early in February. They are made of leaves and manure, or any kind of heating material which is at hand. When the beds have settled frames are placed on, and 6 inches of good soil is spread evenly over the bed, which is well watered and allowed to remain for a day or two. The seed is sown thinly over the surface, and covered with a little fine dry soil, and gently pressed in with a smooth board. The

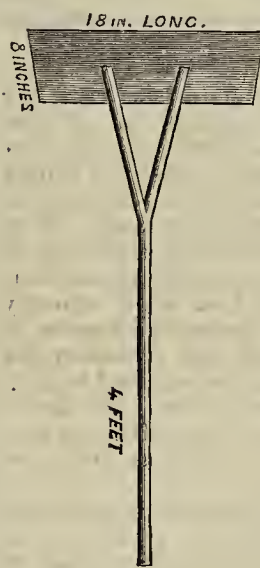


Fig. 5.

frames are then closed until the seed begins to germinate. The time for sowing is from the last week in February to the end of March. Great care is taken to make the beds quite flat—this is to say, the same height at the front as at the back, so that in watering the seed is not displaced by the water running from back to front, which frequently causes the seedlings to damp off. When the plants have made their second leaves they are given plenty of air to harden them ready for pricking out in the open when they are strong enough to handle. Beds of 4 feet wide are prepared by forking in short manure, which the roots adhere to and form small balls of soil, when they are taken up to be planted in the trenches. Women are employed to prick them out at 6d. per thousand. Quick women can earn from 2s. to 2s. 6d. per day. The plants are dusted well with soot once or twice or more if the weather is showery during their growth in the beds.

This acts as a fertiliser, and is effectual in keeping off the fly. Planting out in the trenches is commenced early in May. The trenches are made 5 feet apart. They are opened out with the plough and finished with the spade. Manure is spread in them from the cart and forked in 3 or 4 inches deep. The planting is done while the land is moist. The plants are put in with a spade or trowel down the centre of the trench. If the weather is dry they are well watered, then mulched with litter, long grass, flags, rushes, or anything suitable that can be collected to save labour in watering. When the plants have grown 6 or 8 inches a one-horse plough is run down each side the rows to loosen the soil, then follow two men, one on each side of the row, with an implement each, called in this neighbourhood the "Push-up" (see fig. 5); the soil is pressed up from each side at the same time. This operation is performed several times during the season. The plants are never allowed to break away. The final earthing is finished with spades. The earliest crops are ready for taking up the first week in September, and realise from 2s. to 3s. per dozen roots retail price. The crop is worth from £55 to £60 per acre; often more for very good crops. Later crops from £35 to £45 per acre. The number of plants required per acre is £16,000. Cost of labour in producing earliest crops on the ground:—Average rent from 35s. to £2 per acre; rates, taxes, and tithe, 10s. per acre; manure, £9 to £10 per acre; labour, £10 per acre; carting to stations, £4 per acre; leaving a profit for the best early crops of £28 to £32. For late crops labour is £2 less, bringing a profit of £10 to £20 per acre. There are some failures, which is generally in the first year.

The average quantity sent away weekly is 200 tons from various stations in the neighbourhood. Celery-growing in this district has been a success. Several labourers, very poor men, have started with small plots and worked them in early morning before their ordinary day's work began, and in the evenings with the assistance of their wives and children. These men have now, some one horse and cart, and others two, and grow from 2 to 5 acres each. This season the Rev. W. Metcalf, vicar of Everton, has kindly assisted them



by dividing some of his field land into small plots to start them.—  
C. M. BREWIN, *Buetry, Yorkshire.*

## FRUIT AND PLANT HOUSES.

(Continued from page 560.)

THE fittings of houses are of more importance than many imagine. Foremost are the means of bringing the plants up to the glass, which are of three kinds—viz., trellises, beds or shelves, and stages. Respecting the trellises little comment is necessary, as the plant itself will determine the distance the trellis should be from the glass, as, for instance, *Stephanotis* may be 6 inches, *Roses* 9 inches, *Peaches* and *Figs* 12 to 14 inches, and *Vines* 16 to 18 inches. Some cultivators might complain that these are too close to the glass, alleging that the nearer we bring the foliage to the glass the more we expose that to the vicissitudes of climate. But experience proves that the more we take the plants from the glass the more we encourage growth, long-jointed and sappy, large but thin leaves—everything, in fact, but a floriferous and fruitful growth. Therefore I conclude that the nearer we bring the foliage to the glass, consistent with its not touching, the more likely are we to secure thoroughly solidified growth. Wire trellises are now almost exclusively used, and being galvanised or painted answer perfectly. Some object to galvanised wire as inducing gum or canker. I have had some experience of it, and find no evil consequences attend its employment either under glass or outdoors.

Beds are only necessary when it is deemed advisable to employ bottom heat either by means of fermenting materials, hot-water pipes, or hot-water tanks. Bottom heat, however, is not now employed to nearly so great an extent as formerly, but most cultivators agree that some plants require it; indeed, it is only courting failure in attempting to grow *Pine Apples*, *Cucumbers*, *Melons*, and very early *Figs* in pots without bottom heat. Most cultivators are agreed that a bed of fermenting materials is highly conducive to the health of the plants whether placed in it or not. As a means of keeping down the fuel bill I strongly advise a bed of fermenting *Oak* or *Beech* leaves to be made in each structure where there is a central bed, and necessary for bringing the plants up to the light in all houses required to kept at a higher temperature than that of a greenhouse. The depth ought not to be less than 4 feet, and if put in soon after the new year it will keep its heat until natural conditions are more favourable.

Hot water as a means of affording bottom heat is excellent, and may be employed in three ways. First, the pipes may be fixed not more than 2 feet apart, and so disposed as to allow of at least 6 inches depth of rubble under and over them, into which the heat can pass and be retained. This depth, or about 18 inches, I consider proper; more is a waste of heating power, and less dangerous from over-heating. Secondly, the pipes may be enclosed in a chamber, which ought not to be deeper than 1 foot, the pipes being kept clear of the bottom and of the covering material, whether it be wood or slates; and, thirdly, by pipes in a tank containing water so as to cover them. This latter mode is perhaps the best, as we have heat combined with moisture, provided means be taken to prevent the soil becoming sodden, as may be effected by having 3 inches thickness of rubble placed over the covering of the tank. The tank mode of affording bottom heat is similar, only instead of the water being heated by hot-water pipes the water circulates in the tank, entering at one end and passing out at the other, the tank being divided into spaces about a foot wide by bricks on flat and about 2 to 2½ inches depth of water in the tank. This mode of affording bottom heat is not nearly so much employed as its merits deserve. Shelves, which differ but little from beds, or only in having no enclosed space beneath for means of affording bottom heat or holding soil, are, I consider, best formed of slate. I have them an inch thick, with 2-inch edges to contain material for standing the pots on, as gravel, &c. For houses where there is a considerable amount of moisture, wood shelves are not suitable, as they so soon decay.

In the matter of stages there is nothing to equal red deal properly seasoned. *Oak*, however, answers very well, but is much dearer, as also is *teak*. I have some of pitch pine, but not sufficiently long to express an opinion of them as compared with red deal. The stages should be open—i.e., laths with spaces between. I prefer them an inch thick, 2 inches wide, and fixed so as to allow an inch space between each. The wood should be dressed—i.e., planed, and be given two coats of paint before being put together, and all joints well primed with white lead. It is no use expecting the stage to last if the joints are bad, for only let water get in and the stage will soon need renewal. Two coats of paint should be given after fixing, and allowed to become thoroughly hardened before the plants are introduced.

Moisture is an essential of plant life. The means to insure it are chiefly dependant on manual operations at frequent intervals by means of sprinkling available surfaces, or even syringing; but means of affording it constantly and in proportion to the artificial heat are resorted to in evaporation troughs. These are considered necessary by some, whilst others consider them more injurious than otherwise. I do not wish it to be understood that I consider them necessary for plants not requiring more than a greenhouse temperature, but I do hold a moist heat to be at all times more favourable to vegetation than a dry one. I consider, therefore, that unless the evaporation pipes or troughs are small, and the pipes are highly heated, they are useful. I have used them without any injurious effects, and I must say with marked advantage as compared with the results obtained from structures where there were none. If the house has to be kept at a high temperature by greatly heating the pipes, then shallow troughs will give off too much steam; but even in this case troughs that cause the pipes to be surrounded with water are useful, as they reduce the heat of the pipes and radiate the heat from a large surface at a much lower temperature, whilst the moisture is not relatively abundant. Besides, I find evaporation troughs a ready means of charging the house with ammonia, the troughs being filled as occasion requires with liquid manure. Similar results can be obtained by damping surfaces at intervals, but as we have moisture in Nature proportionate to the heat when vegetation makes most progress, so in the application of artificial heat we should act upon similar principles.

Material may be also used which will give off moisture and something else. Plants always do best on a moist or what we term a cool bottom, on a bed of ashes in preference to a stage or a dry slab, and they do better on a slab, be it stone or slate, than on a lattice stage. This clearly is a consequence of the moisture given and watering being in part at least retained and given off again in the shape of vapour or moisture. The value of this is apparent when liquid manure is used in that passing the pots being given back in vapour form to the atmosphere, and if we have a receptacle beneath for holding the water that passes through the pots in watering we find the plants thrive very much better than when it is allowed to run off through open stages and be lost in the soil or drains. It saves many dampings and is very much better, as the evaporation is in proportion to the atmospheric conditions, therefore more regular and better suited to the plants. We must admit the value of mulching inside fruit borders, and beds of spent tan, or even sawdust and cocoa refuse as plunging material, as they not only contain moisture, but in decomposing afford some nutriment. In shading I need only remark that except for such plants as *Ferns* fixed shadings are not good; smearing roofs with whiting and skim milk, or even summer cloud, and everything that obstructs the light constantly, I do not recommend. What we want is a material that can be put on and taken off at will, for which I know nothing better than the roller and canvas shading with laths to keep it from the glass, and allow of ventilation under any circumstances.—G. ABBEY.

## CHRYSANTHEMUMS IN THE NORTH.

It seems to be generally admitted by all that the past season has been anything but a good one for the "queen of the autumn," and it seems a question whether growers in the north or those in the south have suffered the most. Certainly northerners have had to contend against one of the dullest and most sunless seasons on record; and although some collections may have had to the uninitiated a pleasing appearance through the months of August and September, inasmuch as they "looked healthy," still they have not come in well at the "finish;" indeed, in more than one case have we heard of collections (and some that looked well in the months named) failing to bloom at all, and in several cases where good attention had not been given the blooms have only been very indifferent. We have really felt sorry for some amateurs who have this season for the first time made an attempt. It has been very discouraging, for in some instances which we know of, in spite of enthusiastic effort, there has scarcely been a bloom to reward them. This may, perhaps, somewhat puzzle dwellers in the south, as in most cases there the scorching weather which they experienced in August gave the growths sufficient solidity to bloom, although we understand that they were a long way short of what they were in the season of 1884. On the other hand, as mentioned by Mr. Iggulden, we quite escaped injury from the early frosts, and although our blooms were from three weeks to a month late we have been having the benefit of them for Christmas and New Year's decorations, and welcome they have been. Indeed in our own case, judging from appearances at present, we shall not be long without *Chrysanthemums* during 1886, for we have at the present time plants of *Hero* of *Stoke Newington*, *Princess Teck*,



Madame Moulise, James Salter, Guernsey Nugget, Fair Maid of Guernsey, Dr. Macary, Triomphe de la rue des Chalets, and others, the buds of which are only just showing colour. Of course the majority are terminal buds, and we cannot expect them to be as good as in November and December; but how useful they are in January and February! One seems to value a few plants of Fair Maid and Madame Moulise at this season very much indeed, and always feel sorry when the last bloom has gone. However, by striking early cuttings and taking crown buds we have the much-admired and deservedly popular Madame Desgranges, with its golden sport, and others in bloom again in July or early in August (last year it was September). We hail with especial pleasure many of the recently introduced Japanese, blooming as they do a month or so in advance of the general collection. These, it appears, are the varieties which are disappointing to Mr. Iggulden, which I can quite understand. However, "it is an ill wind which blows no good," and if some of these are too early for the south we welcome them in the north.

But to return to the subject of ripening the wood of Chrysanthemums. If we were never convinced of the importance of this before, surely this season in the north has impressed it upon us; more particularly has this been noticeable in the case of the July-struck plants, which in other years we have valued so much and found so useful. This season, though struck about the same time and promised well, have in most cases entirely failed to bloom. We at first thought that had we struck a month earlier that the case might have been different, but upon looking them over we saw some plants which we remembered were put in in May and the "crown" bud taken, but still the case is much the same. A neighbour who usually grows these small plants well had this season what we considered a remarkably promising batch, but which has not turned out any better than our own. Then, certainly in this case, we must blame the season, and such statements as those which appeared a couple or three years ago as to the non-importance of ripening the wood will not do for northerners. It may do better in the south.

This leads us to the time for inserting cuttings. We are convinced that good blooms here cannot be depended upon from spring-struck plants. We insert cuttings of most varieties as soon as we can get them after the first week in November, but would warn beginners against coddling these plants in any way. We believe in the cold frame after they are rooted if not before.

With regard to Golden Queen of England refusing to properly incurve, we experienced the same difficulty, not only with this variety, but with others as well, especially the Empresses. Perhaps Mr. Molyneux or some other experienced grower will give us a little light on the subject, for, to say the least, it is disappointing. In conclusion, is there any distinction in Mrs. Marsham from its so-called parent Elaine? or is the one a counterpart of the other? I cannot see any difference.—W. JENKINS, *Aldin Grange*.

### DWARF TOMATOES.

A CONSIDERABLE number of growers are under the impression that if dwarf plants are required they should be propagated from cuttings, but this I do not consider the best plan, as I have frequently proved that the dwarfiest, sturdiest, and most prolific plants are those raised from seed in the manner here described. There are but few sorts naturally dwarf in habit, the only one included in most catalogues being the old Dwarf Orangefield, and even this may easily become tall if badly treated. It is still one of the best both as regards free-bearing and the quality of the fruit, the only fault to be noted is that these are rather too small to please everybody. Carter's Perfection I have grown in pots for several seasons and find it very prolific, and the fruit handsome and fairly large, are of excellent quality. Sutton's Perfection is rather too vigorous and succeeds better on trellises or walls, in which positions it fruits freely and continuously, requiring less heat in winter than the majority of varieties I am acquainted with. Hackwood Park Prolific can be made to produce exceptionally heavy crops on pot plants, and the fruits are large and handsome, though these do not ripen so thoroughly as they should do, and on the whole the quality must be said to be disappointing. Dedham Favourite is of good habit, being sturdy and prolific, but it is of the greatest value for open-air culture. Trentham Early Fillbasket was to have eclipsed most other varieties for pot culture, but I cannot speak very highly of it; in fact, I am not certain what are its characteristics, as each time I grew it there were several forms or sorts from one packet of seed. Earley's Defiance is a profitable sort, and Conqueror a heavy cropper. Hathaway's Excelsior is still one of the best, and although one of the earliest of American introductions it appears to be the only one that has attained a lasting popularity. Of the foregoing I can most strongly recommend Dwarf Orangefield and Carter's Perfection, while if a third variety is required

I would add Earley's Defiance, this being a good form of Large Red—one of the oldest and heaviest cropping varieties in cultivation.

In order to secure an early crop from plants in pots, in advance perhaps of heavier and later crops from those planted or fruited in boxes and larger pots, no time should be lost in sowing the seed. This should be sown thinly in pans or pots well drained and filled with fairly light soil, the seeds being only lightly covered. The soil being fairly moist, no water need be given; otherwise give tepid water through a fine-rose pot. If the pots or pans are plunged in a brisk bottom heat, or failing this are stood as near the hot-water pipes as possible, the seeds quickly germinate, and then the dwarfing process must at once commence, for dwarfed pot plants must generally be if they are to be profitable. Directly the seedlings are clear of the soil the pots or pans ought to be either raised on the hotbed so as to well expose them to all the light possible, or else stood on a warm shelf near the glass. It is also advisable to thin out the seedlings where at all crowded, this all tending to keep the reserved plants more sturdy, and, besides, it is unwise to raise many more than are really required for that particular batch. When the seedlings are in rough leaf—that is to say, have partially developed a second pair of leaves, the time has arrived for potting them off, a few days' delay adding, maybe, as many inches to their length. Any light soil suits them, the usual mixture being two parts turfy loam to one of leaf soil or thoroughly decomposed manure. This ought always to be warmed before using, and which is most easily accomplished by plunging one or more hot bricks into the heap for a short time. The potting should also be performed in the house where the plants are growing, or otherwise a severe check may be given them. There are plenty who first pot off singly into 3-inch and even smaller pots, but I am still of opinion that it is much the best plan to either pot off singly into 5-inch pots or in pairs in 6-inch pots, and can safely assert that these do not become nearly so drawn and spindly as do those in small pots, even if the latter are given a shift prior to their transfer to the fruiting pots. Directly plants either in small or large pots become root-bound the top growth soon loses its sturdiness, and by the time this has been recovered dwarf fruiting plants will have become impossible. The process of first potting must be again alluded to, as this also affects the dwarfing process. Clean pots should be used with one crock in the bottom, this being covered with a little rough manure or turf, and the seedlings should be sunk into the soil so as to bring the seed leaves, after the soil is jarred down, in preference to hand pressing, just on the surface. A little water of the same temperature as the house may be given after the pots are either plunged or stood on the bed, or else stood in a warm position where they may be lightly shaded for two or three days. They will soon commence rooting afresh, the buried stems also freely emitting strong roots. As soon as they will bear the full sunshine they ought to be well exposed to it, and as near the glass as possible without exposing them to cold draughts of air. In this manner the requisite sturdy plants will be secured, and these should be transferred to the fruiting pots before they become badly root-bound.

We generally use 12-inch pots for the single plants, but if the positions favour the use of larger pots these are made to hold two plants. Very little drainage is needed, and instead of so many crocks we find it preferable to use the roughest portion of the compost—this, I ought to add, consisting of two parts of turfy loam to one of slightly decayed horse droppings, also well warmed as above advised. We pot deeply so as to allow plenty of room, or say fully one-quarter of the depth, for a good top-dressing later on. A strong stake from 3 to 4 feet in length is at once placed to each plant, and all are then stood on a well exposed wall or staging. The balls being properly moist when shifted into the fruiting pots, no water will be needed for two or three days, but they should be examined frequently and watered carefully as required till such times as the roots have taken strong possession of the new soil, when they should be watered in the usual manner, and never at any time with water lower in temperature than the house in which the plants are growing. The first bunch of bloom will in most cases have been observed when the plants are finally potted, and on the preservation and development of this depends the character of the plant. If the work has been carried out as described, no severe check will be given, and a strong bunch of bloom will develop most probably within 12 inches or, at the most, 15 inches of the pot, and to this two more strong bunches will soon be added, which if good "sets" are obtained will yield an ample crop. From the first all side shoots ought to be kept closely rubbed out, this naturally encouraging the formation of a stout stem and extra fine foliage. The fruit does not always early in the



season set so readily as wished for, and to encourage free setting a rather drier atmosphere than is usual in ordinary forcing houses should, if possible, be maintained for a few days. Then towards mid-day, or say after a little air has been given for a short time, a smart tap may distribute the pollen and effect the set, or, in order not to risk failure, the camel-hair brush may be used for touching over the blossoms, and we have frequently effected good sets by gently rubbing the fertilising parts of two flowers together. It is not advisable at any time to syringe the plants; while temperatures that will grow them quickly are 55° to 60° by night, 65° to 70° by day, raising 10° higher with sun heat, closing the house early so as to raise the heat fully 10° higher. I give those figures as being suitable, but they may be varied according to circumstances, Tomatoes succeeding and taking "pot luck" in either Cucumber and Melon houses, or vineries, Peach, and plant houses.

I am not an advocate of starvation treatment of Tomatoes, and in pots especially liberal treatment must be given or the crops will be light. Directly the first bunch of fruit is set we give the plants a good top-dressing of loam and decayed stable manure or horse-droppings in equal proportions, and take particular care that this top-dressing of fresh unoccupied soil does not mislead us. This may be moist enough, but the fully occupied soil underneath be injuriously dry, and unless this is guarded against a great check will be given. Then if extra good crops are being perfected the plants receive later on yet another slight top-dressing of manure, and also an occasional dusting over the surface of the soil with Beeson's or some other artificial manure, this being varied with moderately strong supplies of farmyard liquid manure. From the foregoing it will be seen that we spare no pains in our endeavours to secure heavy crops of fruit, but I hold that without extra good house accommodation it is quite necessary that such pains should be taken, and, further, that the results amply compensate. I suppose that high prices for Tomatoes will never again be realised, owing to the fact that the supply has increased to such a wonderfully rapid extent. Immense quantities are now annually eaten in various forms in this country, but it is doubtful if pot culture will prove sufficiently remunerative as of old unless exceptionally heavy crops are obtained.—W. IGGULDEN.

## FERNS—THEIR HISTORY AND HABITATS.

[A Paper read before the Paxton Society by Mr. J. G. Newsham of Sheffield.]

(Continued from page 9.)

In closing my remarks on culture I would ask you to be most careful in the administration of water. Water should not be given over the fronds. The moisture in the case caused through evaporation is quite sufficient to supply all that is necessary for them. Small fountains, miniature falls, and other such adornments are useless unless the water is disposed of independently, and not allowed to pass through the soil or deluge the fronds. In the winter months supply water very sparingly to the roots, as however good the drainage the danger remains the same. Ferns grown in cases, or under close confinement in any way, are remarkably delicate, being very susceptible to mildew, and also more liable to the attack of disease in its various forms. Ventilation in a great measure depends on circumstances and the class of Ferns being grown. A little experience will suffice to teach what is required.

### THE FERNERY.

In order to fully appreciate the beauty of Ferns and to enjoy their attractions, you require to possess a properly constructed fernery. This is beyond all doubt the one ambition of the Fern fancier. In the fernery you can grow from the smallest to the largest, humour the most majestic, nestle into snug corners the very smallest, produce fair specimens of the many varieties equally as well as if Nature herself had nursed them. 'Tis here, and here alone, that you can enjoy the real sweets of this favourite pursuit. The fernery may be constructed entirely of rockwork, or suited only for pot culture simply at the will or fancy of the grower. If you wish to produce show or specimen plants adopt the pot. If artistic effect is the object, then, of course, simply convert the outdoor fernery into rockwork under protection; in that case you may add the great majority of British Ferns, all the half-hardy varieties with Selaginellas or Mosses if you think proper. Generally speaking, follow the instructions given previously, paying more attention to the composition or geological arrangement, as that will introduce a greater variety.

Objections may be raised to this method in a fernery. It has its advantages and disadvantages. Effect is the most salient feature in its favour. Again, you have certainly less trouble

with rockwork on account of the almost unlimited supply of moisture at the roots, which have a free run amongst our stones and soil, and do not therefore require that constant attention, unless it be in the matter of snails. Every night take a candle or lamp, and diligently search for the thieves, give no quarter, but destroy every trace of them; failing this you will soon find that copying Nature in part only is a disadvantage.

Ferns grown in pots require daily attention, especially in hot weather. If once allowed to get dry the plants generally suffer for the whole season, and very frequently during the one following. In many of our tufted varieties, during the autumn months, you will find the crowns forming their next year's supply of fronds. The plants will present a fullness or swelling just above the soil. If even at this period of the season you allow them to suffer for want of water, you will well understand that their progeny, from this very cause, is to a great extent annihilated. Another precaution must be taken against too much moisture. You will often find that the holes at the bottom of the pots become choked from various causes, and the water prevented from properly draining away. The results of this catastrophe in nearly all cases prove fatal unless great vigilance is exercised. Upon rockwork this rarely occurs. When plants are grown in pots they can be removed from one position to another, just as their requirements demand, whereas upon rockwork they necessarily become stationary. Constant removal of plants by taking out their roots destroys their vitality and weakens their progress in every way. I have tried both methods, and find much to admire and much to praise in each. The only advantage to me is that by growing Ferns in pots I am able to produce better specimens for exhibition. The labour is greater beyond doubt, and the achievements more difficult, but the result compensates for the extra trouble. To secure success in pot culture, you also require great judgment in potting and repotting. I have seen plants with very good prospects for their future growth spoiled by being kept in pots too small. On the other hand, a great fault is committed by our potting—that is, giving too large pots.

It is of the greatest importance that there should be a free motion of the earthy molecules forming the soil in the pots. To obtain this your pots must be perfectly clean inside; if the pores are blocked before you put the plant in, the air cannot chemically and easily combine with the soil, the salts so necessary to the plant can never be produced. It is possible to have both inside and outside clean before you remove a plant, and it is highly beneficial.

Upon the subject of watering I have said a little in respect to the various modes upon which I have dwelt. I know that in respect to overhead supplies there is much diversity of opinion. I will give you my idea and leave you to accept it or reject it.

All Ferns grown upon rockwork, whether indoor or outdoor, are certainly benefited by being syringed. Ferns in pots should be watered by the can for two reasons. First, it is safer. You might, perhaps, force a lot of water overhead, and think the plant would have sufficient, whereas a close examination of the soil would reveal the poor roots almost baked, and take it for granted that if this were allowed to continue long you would have no fronds to water, or what were left would be brown or yellow, and no doubt you would at once say syringing did it; nor would you be very far wrong either, for if you had used the can and not the syringe you might have saved your plant. Secondly, I believe that when water is given overhead to a thirsty plant it has a tendency to hasten its decay. Plants grown in windows in pots should every now and again be well washed with the syringe, or they have no chance of inhaling the atmospheric support they require. Instead of moisture they get dust and smuts.

Liquid manure I rarely use. I look upon it as teetotallers look upon beer. It may be—in fact, I believe it is—useful when given to a plant which is sickly; but even then it must be very weak. If the Ferns thrive well, let well alone. I have tried water with lime for one class, water which has been poured over leaf mould, or peat for others. In fact, I may say that I have attempted to produce decoctions from various sources, and to imitate various strata, or the issues of these strata, and have been fairly successful. This, however, may be considered as raw material, and should not be attempted except by such as have made themselves conversant with the geological distribution of Ferns.

MR. E. MOLYNEUX ON PROPAGATING CHRYSANTHEMUMS.—I am sure all your readers read Mr. Molyneux's excellent contributions with great interest, not so much because he is the champion grower, but because of the great clearness and accuracy with which he conveys his own experience. A vital point in propagating is to give sufficient air to dispel damp, and this more especially with the rare and more delicately grown varieties, that are very



liable to decay before suspected if too moist. He suggests admitting air for an hour in the mornings—of course not referring to frosty mornings—otherwise to keep the house closed for a month or so. The atmosphere in the south of Ireland is generally at "saturation point," during December, January, and February, so that when it is so I find it advisable, as many of my gardening friends do, to tilt the frame behind and ventilate on night and day. I once lost 200 cuttings by keeping them close.—W. J. MURPHY, *Clonmel*.

### NEW VARIETIES OF CELERY.

FROM what has been written lately about the White Plume Celery it does not appear likely to be grown extensively by the majority of people. I have not tried it, but must say I like to see it when grown well on account of its ornamental appearance, but most people require other qualities in Celery besides this.

I have this season tried a variety called Celery Blanc Doré, which was very highly spoken of last spring as not requiring earthing. I should probably have taken no notice of it, as I well knew how the White Plume had failed in the same way, but a gentleman requested me to procure him some seed, and also told my employers what a grand thing it was. I accordingly procured some seed, and in due time some plants were placed out as recommended, without any provision for blanching; but as I had great doubts about the matter, I resolved to try some of it in the ordinary way also in order to thoroughly test it. That planted on the level surface grew rather over 1 foot high, of a pale straw colour, none of it white enough to use, but 15° of frost assisted us, and set all doubts at rest as to what we were to do with it. That planted in the trenches and earthed as usual is short, tough, and stringy, and certainly not fit for use under treatment which has produced Sandringham and other varieties by its side in first-rate condition. New varieties ought to be well tested before they are recommended in the papers to prevent other people being put to trouble and expense for nothing; it should not be any recommendation to a plant to be new unless it supersedes older varieties. I should think Sandringham Dwarf White, under one of its various names, and Major Clarke's Red are grown more than any other varieties by private growers.—W. H. DIVERS, *Ketton Hall*.

### PROFESSIONAL GARDENERS' BENEFIT SOCIETY.

THE annual dinner of the above Society was held at Leeds on Friday, January 8th, about fifty members and visitors from the neighbourhood of Leeds, Sheffield, Wakefield, Huddersfield, and other towns being present. Mr. Joseph Smith presided, the vice-chair being occupied by Mr. Buck. Letters of apology for unavoidable absence from W. L. Jackson, Esq., M.P., and Councillor Loe, were read. After the dinner and the usual loyal toasts the annual report was read by Mr. W. Sunley, the Secretary. It was as follows:—

#### ANNUAL REPORT OF THE PROFESSIONAL GARDENERS' FRIENDLY BENEFIT SOCIETY.

In presenting the nineteenth annual report, your Committee beg to direct attention to the annexed balance sheet, which shows cause for satisfaction.

	£	s.	d.
The Society's income for the past year has been ...	141	10	11
Its expenditure for the same period has been ...	82	1	4½
Which leaves a saving for the past year of ...	59	9	6½
This amount added to the savings of the eighteen previous years of ...	707	7	10
Makes the total amount placed to the Society's credit of ...	766	17	4½

Representing the value to each financial member of £6 19s. 5d.

The total number of honorary members is twenty-three, and the total number of financial members is 110. The mean age of all its members is at the present time about forty-four years.

This fact, along with the knowledge of the amount of funds already accumulated and available by the Society, gives promise of its future prosperity and stability.

Your Committee beg gratefully to acknowledge the very liberal support accorded to the Society by its honorary members, and cordially welcome the seven additional gentlemen who have been enrolled during the past year.

Your Committee will always endeavour to promote the welfare of the Society, and continue to rely on the kindly forbearance and support of the members generally.

Signed on behalf of the Committee,

WILLIAM SUNLEY, *Secretary*.

*Bacchus Hill, Moor-Allerton, Leeds,*  
January 1st, 1886.

Mr. G. Hemming moved the adoption of the report, which was carried with considerable enthusiasm. It will be seen that the Society is in a very satisfactory condition, the amount saved during the past year being considerably above the average, which may be stated roughly to be about £40 per year. The disbursements for sickness amounted to £26 3s. 4d.; for funeral expenses to £37 2s. It may be stated that the Society is not a local one, for its benefits are open to professional gardeners throughout the country. The payments amount to 13s. annually for each member; and an additional 1s. each is levied on the death of a member, and of 6d. for a member's wife. The advantages are that members who are unable to work through sickness are entitled to 10s. per week for twenty-six weeks, and 5s. per week as long as they are ill. At the death of a mem-

ber his widow receives £10; at the death of a wife the member receives £7.

The toast of the evening, "The Professional Gardeners' Friendly Benefit Society," was proposed by Mr. Councillor Milnes of Wakefield, who expressed his approval of the twofold objects of the Society. They were most praiseworthy. A number of men had banded themselves together to help each other and for their mutual improvement. They were laying by money for relief in old age or want. In case of sickness they were not compelled to go to others for assistance, while in the event of their death a sum of money was given for the assistance of their families. He suggested that much might be done to effect mutual improvement in the Society by encouraging its members to read essays at its meetings and by discussions. He stated that the Paxton Society at Wakefield had endeavoured to have essays read at all of its weekly meetings, no less than forty-eight having been read last year. He believed that many members of the Benefit Society could produce instructive essays, and thought it probable that some members of the Wakefield Paxton Society would assist them if desired. Mr. Featherstone, in replying, stated that one of the rules of the Benefit Society was to the effect that any members having interesting specimens of fruits, vegetables, or flowers be invited to exhibit them at the Society's meeting, with a view to discussion thereon. With regard to essays, many had been read, but he reminded those present that as the meetings of the Society only took place monthly, it was impossible to have anything like the number referred to by Mr. Councillor Milnes. Altogether he thought the question of mutual improvement was by no means neglected.

Mr. Franklin referred to the flower show held at Leeds last year, the excellence and success of which were largely due to the efforts of Mr. Featherstone. He trusted other shows would be held this year. The last named gentleman, in responding, stated that he had hoped to organise a Chrysanthemum show last autumn, but the project had to be abandoned through failure to secure a show-room at a suitable time. He should make every effort to institute a Chrysanthemum show in autumn this year. The last summer show had been a very successful one.

Several other toasts were proposed, and a most enjoyable evening was spent by the assembly.

### TEA ROSES UNDER GLASS.

WHEN visiting the hospitable proprietor of the Royal Nurseries, Ascot, recently, I was much struck with the way in which Tea-scented Roses were grown and trained in the extensive houses devoted to their culture for the supply of cut flowers. The main principle seems to be, Avoid training close on to the glass or walls. Thus in a long span-roofed house the Rose trees are planted along the margins of a central bed, and plant stakes are inserted at intervals of about 6 inches all down each side of the bed, and then bent over to meet and be firmly secured together in the middle, forming a complete arcade under which a man can pass if need be. Over this arcade the plants are tied out and trained, making a far more effective display than when trained up under the roof, and also being in a position much better adapted for the operations of pruning, looking for insects, syringing and cutting flowers, while the advantage to the dwarf plants, which may be grown at the sides of the house either in pots or planted in beds, of not having the light from the roof impeded by a leafy screen is obvious. Similarly in the lean-to houses, the trees are planted about 3 feet from the wall. Numerous stakes are inserted by them and sloped to the wall, and upon these the Roses are trained. By this means the walls themselves are left clear, so that they may be readily lime-washed or cleaned without disturbing the plants, which themselves are in a better position to get their wood thoroughly ripened. Two of these long lean-to houses were filled with Madame Falcot looking like the picture of health, and a third was entirely occupied by Niphetos, which had been pruned, and was already covered with buds and fresh strong growths, showing how successful was the treatment they received, by the vigorous shoots and early promise of abundant blossom.

There is one long span-roofed house entirely devoted to Maréchal Niel and here the trees planted along the two sides of the house are trained up close under the glass. In this case the ripening and bracing-up of the wood for the task of bearing its annual burden of flowers is effected in another way. The house in question has two strong principals running its entire length upon iron supports, and braced together here and there by iron rods. The roof consists of long rafters of angle-iron running from the apex of the roof to the ground, or rather to piles hardly visible above the surface on either side, so that the cross-section of the house may be represented by a capital letter A. The rafters are sufficiently far apart to admit of the glazing in strong frames of about the width of Cucumber-pit lights, and the glazing between each pair of rafters is in two frames whose junction comes upon the principal, while all are securely fixed in position by means of screws. It will thus be seen that the whole roof (which is practically the house) is arranged in portable and moveable sections, and as soon as the weather becomes warm and settled after the Roses have done flowering the roof is unscrewed and bodily removed for the summer, leaving nothing but the rafters between the trees and the strengthening and ripening influence of the weather. The result is a canopy of sound rods, of a solid appearance too seldom seen in climbing Roses under glass, and surely foreshadowing a golden age in the near future.

The importance of a free circulation of air and light when the plants are making and ripening their wood cannot be over-estimated in the case of Roses, especially under glass where trees are planted for a permanency. Of course pot Roses are easily provided for by standing them out of doors



during the summer, but at Ascot most of the plants used for supplying cut flowers are planted in beds, to their manifest enjoyment. There is another house with Maréchal Niel trained under the roof, and beneath its partial shade a forest of Camellias simply luxuriates, while houses full of Gardenias giving promise of bloom enough apparently to supply all Bond Street, seem to indicate that the estimation in which these favourite flowers are held is not likely to be seriously affected by any ills the plant is heir to. If, however, danger appears in the form of scale or mealy bug, the most effective, as well as the cheapest way of eradicating it, is found to be by means of petroleum and water thoroughly mixed. Among other plants, which were looking as hearty as the Gardenias and other hard-wooded plants, were innumerable young Palms, including the beautiful Kentia Balmoreana, a far more handsome plant for room-decoration than the generally used *Seaforthia elegans*, which was also extensively represented. The finer texture of the leaves of the former makes their deep green colour more noticeable, and the whole plant is more distinguished-looking than is the case with the latter Palm.

In a charming houseful of forced spring flowers the pretty *Cytisus Everestianus*, a dwarf fine-leaved form, was especially attractive, and appeared eminently adapted for a room plant, while in another long house (of which there are upwards of thirty all worthily tenanted) the delicious fragrance of masses of Lily of the Valley and white Lilac Charles X., seemed almost solid enough to be cut with a knife.

There are a good many Roses grown out of doors at Ascot, but there is not much temptation at this time of year to investigate them. The nursery outside, however, presents a powerful attraction to lovers of American plants and Coniferae, of which there are numerous fine examples of all the leading kinds. Among the more scarce sorts may be mentioned the new French variety of *Cupressus Lawsoniana* Tom Pouce, a beautifully outlined and very dense tree, and a very pleasing variation of the well-known *Abies lasiocarpa* Lowii, called *Abies concolor*, which has long leaves of a beautiful glaucous blue tint; in fact it might be described as *lasiocarpa* with the colour of *A. nobilis*. The comparatively recent *Abies polita* of Japan, with its stiff noli-me-tangere leaves is also noticeable, while there are exceptionally handsome specimens of the rare *Abies Hookeriana*, a tree whose very distinct appearance, with upright habit and short glaucous leaves, might induce the supposition that this species had at one time been in doubt whether to appear as a Cedar or an *Abies*, and had ultimately decided to adopt the characteristics of both.—T. W. G.

#### GROS COLMAN VINE.

I WAS much interested in Mr. Taylor's article on Gros Colman, but should like to ask him a few questions. Is he sure it was potash alone that the Vines required? I mean, has a sample of the soil been submitted to an analytical chemist, or has Mr. Taylor's friend sufficient skill to analyse it himself? If so, will he explain the process? What was the liquid manure composed of? In the case of Vines, supposing the insufficient supply to be potash, would the trifling cost be for farmyard manure or "potassium salts"? If the latter, will Mr. Taylor state the best way to apply them and the quantity per square yard? I gather from the remark in the last paragraph that Gros Colman needs more potash than other Vines. How did he arrive at this conclusion? Has he tested Vines of different varieties with purely potash manures of different strength to warrant him in making the assertion?

I have just finished a Vine border (an outside one) 3 feet deep, including drainage; and as I was not allowed to pare more turf than would cover the drainage, and cheapness was a *sine qua non*, the soil only consists of two-thirds heavy loam without fibre, and one-third burnt earth with the ashes and charcoal of the wood it was burnt with, and some old mortar. Broken bricks were freely used as it was made up. I intend planting the Vines, and then mulch heavily with farmyard manure, and I think the manure and the wood ashes will give sufficient potash for some time.

As this is my first head place and the first Vine border I have made, I cannot afford to risk my reputation by trying experiments with chemical manures. I have not much doubt but Mr. Taylor's theory is correct, as turf was used, and the grass would perhaps furnish sufficient nitrogen; but it will do no harm if he will answer my questions, and may be useful to other readers of the Journal besides.—A. L. G.

MR. TAYLOR, on page 576, opens a subject of importance, and doubtless opinions will differ respecting it. He mentions the opinion expressed by a writer in the Journal, which I well remember, that it is beneficial to plant Gros Colman at the north or shaded side of the vinery. This advice qualified I think is not far wide of the mark, and whenever opportunity affords I intend to act upon it. I have bestowed a good deal of thought upon the peculiarities of this Vine, and am happy to say not without success.

I hardly know how far I may agree with Mr. Taylor regarding the root treatment, as I am rather liberal with potash, not only for Vines annually, but to outdoor fruits, but also vegetables with good results; yet when I notice Gros Colman fail to retain its foliage and assume a transparent reddish colour only in a house where several other varieties, black and white, succeed admirably I feel loth to believe how any special root treatment could very materially stave off the evil. It is difficult to see why Gros Colman should need food so entirely different from others. Shade, however, in my opinion is of the utmost importance. For three seasons now I have had the glass over Gros Colman painted, or in other words frosted thinly with the best white paint mixed with varnish. It is

very transparent and improved the foliage much, and the bunches were better coloured. I decided therefore to shade still more if bright weather appeared again; and in June last year we fastened over the frosted surfaces cotton well stretched about one-eighth of an inch mesh. This proved very satisfactory, although the foliage became rather tinted; it was of good substance and was retained equally as long as others, especially those leaves which happened to have other large leaves over them. The berries were equal in colour to the best Alicantes; in fact, late in August a bunch was given an artist along with some other choice fruits as specimens for painting. Seeing that our Vines have had abundance of potash each season, I can hardly accept it as a remedy, much as I always esteem Mr. Taylor's notes on Vine topics.—LATHYRUS.



WE hear that the HEAVY SNOW has seriously damaged trees in many public and private gardens, branches being torn off by the weight, and numbers of fine specimens are in consequence irrecoverably ruined. The injury has been severely felt at Kew, and Conifers have as usual suffered greatly owing to their branches retaining a large quantity of the snow. The depth of snow in the Royal Horticultural Society's Gardens at Chiswick was 7 inches, and the lowest reading of the thermometer last week 14°, or, as it is termed, 18° of frost.

— THE past week has been a somewhat calamitous one to horticulturists, for in a railway collision at Manor Park on the Great Eastern line two well-known persons, Mr. Wallace, jun., of Colchester, and Mr. Horsman of the same town, were both injured, though happily, we believe, not very seriously. On the same day Mr. William Brown of Hendon, a florist who has long held a prominent position amongst the best Pelargonium growers round the metropolis, was found drowned in a well in the nursery.

— THE TURNER MEMORIAL COMMITTEE held a meeting at South Kensington, on Tuesday, the 12th inst., but was adjourned owing to the fund at present obtained being insufficient for the intended purpose. A sum of £162 has been subscribed, but it is considered that at least £200 will be required for investment to furnish a permanent fund.

— WE understand that the AMERICAN EXHIBITION which was to be opened in May this year has been postponed until 1887, to avoid clashing with the Indian and Colonial Exhibition at South Kensington.

— AT THE SHOW OF THE DEVON AND EXETER BOTANICAL SOCIETY to be held in Exeter on August 20th, 1886, Messrs. Lucombe, Pince & Co., Exeter, will offer three prizes, value £3 to 15s., for a collection of twelve distinct vegetables. The same firm will hold an exhibition of Hyacinths at their nursery, March 5th, this year, when three prizes, value £2 2s. to 10s. 6d., will be offered for twelve named Hyacinths, distinct varieties.

— MR. F. W. BURBIDGE, Trinity College Botanic Gardens, Dublin, advocates the establishment of an ORCHID SOCIETY on a broad and comprehensive basis, "so that we may really begin the organised study, culture, and exhibition of Orchids in this country for the first time. It is lamentable that the isolated studies of observant individuals should be hidden under a bushel, or often lost altogether for want of a central society or body of experts to which such observations would naturally flow and be preserved." We anticipate that many will be willing to give their support to this excellent proposal, and it will probably lead to some definite results.

— ON Thursday, the 8th inst., Mr. James Udale of Sheffield delivered an interesting LECTURE ON THE CHRYSANTHEMUM at a meeting of the Hull Chrysanthemum Society in the theatre of the Royal Institution, Hull. The history was referred to, but especial attention was given to the culture, which was fully treated. The lecture was followed by a discussion, and votes of thanks to Mr. Udale and the chairman concluded the meeting.

— "W. S." SENDS the note appended relative to using SALT ON ASPARAGUS BEDS:—"The [idea that salt] is beneficial to an Asparagus bed does not find favour among all gardeners, some of whom have learned from experience that a heavy application will kill the tender plants.



Many, especially in the United States, are abandoning the practice of applying salt, and claim that neither the yield nor quality of the Asparagus is unfavourably affected."

— A CONSTANT reader writes :—"I should feel greatly indebted to you if some readers of the *Journal of Horticulture* could give me their opinion as to the value of the READING HERO POTATO. We find it an excellent cropper, equal to Magnum Bonum, but very little use for table, as it is a bad colour. Is this usual with the Hero? or is it the fault of the soil, which is a rather heavy loam."

— A CORRESPONDENT, writing from near Henley-on-Thames, observes :—"The HEAVY SNOW that fell on the 6th inst. has caused great injury to trees; a continual crashing of large branches might be heard throughout the day in the parks and woods in the neighbourhood. In places the roads were almost impassable from the falling *débris*, and many branches threatening to come down on the pedestrians."

— A SHORT time ago we announced that MESSRS. WEBB & SONS, Wordsley, Stourbridge, had been honoured with a Special Royal Warrant appointing them seedsmen to Her Majesty the Queen, and we now learn that they have also received a similar Special Appointment to His Royal Highness the Prince of Wales.

— IT is said that there is a CABBAGE FARM of the extent of 100 acres near Chicago. It requires 1,114,000 plants to set it; and counting those used in the resetting, 30,000,000 are required for the whole neighbouring district under cultivation, which comprises 2500 acres.

— "MANAGER" sends the following on EARLY SEED ORDERS—"I write to ask if you will use your powerful influence in the interest of the thousands of seedsmen's assistants who are working very long hours at this season of the year in the execution of seed orders, by advising purchasers not to withhold their orders until the cold weather disappears, but to send them unto their seedsmen as soon as possible whatever the weather may be. It is only those who have had experience of the terrific pressure that is felt in our large retail seed establishments in London and elsewhere at the break up of a frost, such as the present, that can realise the amount of energy necessary to keep up with the work thus accumulated, and early orders are equally desirable in the purchaser's interest, inasmuch that the seeds are at hand for use the moment the weather is favourable for sowing."

— THE annual meeting of the SHEFFIELD FLORAL AND HORTICULTURAL SOCIETY was recently held at the Society's rooms, when the report and balance sheet read and adopted, which showed the Society to be in a very prosperous condition, and to have enrolled a considerable number of new members during the past year. Mr. W. K. Woodcock jun., was unanimously elected as Secretary in the room of Mr. W. K. Woodcock, sen., resigned through pressure of engagements. The remaining officers and Committee were mostly re-elected. A very good list of essays is arranged for the first half of the current year—viz., February 3rd, "The Nomenclature of Plants," Mr. J. Haigh. March 3rd, "The Cultivation of the Gladioli," Mr. T. Marples. April 7th, "The Principles of Gardening," Mr. T. Inman of Leeds. May 5th, "The Lapageria, with other Stove and Greenhouse Climbers," Mr. W. K. Woodcock, sen. June 2nd, "The Destruction of Plant Pests," Mr. J. Walker. A small exhibition of plants and flowers in season will take place at each meeting.

— THE Rev. H. H. D'Ombra's "ROSARIAN'S YEAR BOOK FOR, 1886" is issued, and as usual contains a series of interesting chapters upon Rose subjects. The frontispiece is an excellent portrait of Mr. B. R. Cant, of whose career and successes an account is given by the Editor. A "Symposium of Mildew" includes a chapter by Mr. Worthington G. Smith, illustrated with the figures of the Rose mildew which originally appeared in this Journal; one by Mr. D. T. Fish, a third by Mr. E. R. Whitwell, and a fourth by Mr. E. W. Badger, all of which give many interesting details concerning this troublesome pest. Special reference is accorded to sulphide of potassium as a means of destroying the mildew, favourable evidence from several cultivators being given. The quantity advised to be used is quarter ounce to a gallon of water, syringed on to the plants. An interesting chapter on "Single Roses as Decorative Plants" is contributed by Mr. T. W. Girdlestone. Mr. Alexander Hill Gray descants upon "Roses in the Fortunate Islands." Mr. G. Paul has an article upon climbing and pillar Roses, while Mr. E. Mawley gives us a review of "The Weather," and the Editor has several reviews and notes.

— THE ARTIFICIAL COLOURING OF FRUITS OR VEGETABLES is becoming too common a practice now. A short time since we heard of a number of Potatoes being so treated before being exhibited, and now a correspondent sends this note :—"French gardeners fit their unripe Tomatoes for market by painting or staining them red, giving them the appearance of ripe fruit. The experiment does not always prove a financial success, however, as several such enterprising characters were lately fined 100 francs each for indulging in this method of rendering their products attractive."

— THE report of the SELECT COMMITTEE ON FORESTRY states that it was found impossible to conclude investigations during the past session, and recommends that a Committee on the subject should be appointed in the next session of Parliament. On the general subject of the proposed Forest School, Colonel Pearson, in examination before the Committee, expressed himself in favour of a Chair of Forestry at the Edinburgh University, but he further stated that he had no actual faith in lectures in the school unless illustrated by practical instruction. Regarding the extent or scope of the school, Mr. Thiselton Dyer, in reply to Sir Edmund Lechmere, said he would make the school applicable to India and the Colonies as well as to our own country.

— IN describing the district of Kattiawar, India, a correspondent thus refers to the ASOKA or "SORROWLESS TREE" (JONESIA ASOCA), which grows freely there. "Its spear-shaped wavy leaves are not now diversified by the bright blossoms of scarlet and gold which Wasanta time will bring, but there is no tree more celebrated in Indian poetry. It was to the Asoka that Damayanti addressed her pretty appeal, in the 'Mahābhārata,' when she adjured the 'Heart's Ease' to tell her where Nala had gone. The soil hereabouts is full of nitrous salts, which dry in a white crust wherever water has been. Yet it is evidently very fertile, and full of wells, built with the sloping platform, where white bullocks draw the big skins of water up, and then go backwards to plunge them in again to the monotonous song of the byl-wallah. But Kattiawar wants trees. Trees will save India, and are saving her, from the fate of Central Asia, desiccated by nakedness. The Forest Conservancy, promoted by the British Rāj, is one of its greatest benefits to the peninsula. India would have been a 'howling wilderness' if the sway of the Mogul or the Mafratta had lasted. It is her trees which hold the precious water in the earth and give shade, moisture, life. The Peepul, the Asoka, and the Aswattha have never been half enough worshipped. Every forest officer is the priest of a true religion."

#### CANKER AND INSECTS—OUR PRESENT STANDPOINT.

THIS is a matter which has not unreasonably occupied some space in this Journal, and may be expected to claim more before sundry queries that have been suggested can be satisfactorily solved. I have been lately engaged in some investigations concerning canker, and though I will not venture to speak with too much positiveness, I am still of the belief that the insects are to be exonerated. Firstly, it should, however, be stated that so far as I have inquired amongst fruit-growers, the majority of them do attribute canker to an insect rather than a vegetable cause. This notion on their part must be taken for what it is worth—that is to say, on matters of culture they may reasonably be expected to know what appertains to their calling, but on a question of insect economy they have seldom the means of forming a judgment, especially where it is one of some difficulty. Entomologists generally have sadly neglected the study of these minute species; those few who are competent to form an opinion are here almost to a man prepared to vindicate the insects. One observer asks whether there may be running together two maladies, one popularly designated canker and of vegetable origin, the other due to the attacks of mites, but in its symptoms resembling the former. This is not a theory that has much plausibility, nor is it, I should say, likely to meet with support, though gardeners differ considerably in their descriptions of canker, and it may have been confused with what an editorial note calls "ulceration." What I understand by this term is an appearance on the branches, or perhaps on the stem of young trees, which is not attributable to the work of mites or other tiny insects, but is caused by the occasional gnawing of caterpillars whose wonted food is the leaves. But possibly ulceration is differently understood by some people or explained differently.

Now, there are certain conditions of tree life under which we may expect to discover canker; this is allowed by those even who connect insects with it. Fruit trees in crowded neglected orchards are liable to it, also trees growing in heavy clay soils or in an impoverished soil, specially, that is, in soil lacking phosphates and nitrogenous compounds. Old and much cultivated, possibly worn out varieties, are thought to be its particular subjects. My friendly opponent, Mr. Hiam, lays much stress upon the circumstance that branches or twigs with signs of canker occurred upon trees which he believed were radically healthy, but how can this be proved? To take an instance for comparison from our own race: it is



familiar to us that sometimes from the effects of a trifling ailment a man suddenly dies, and the explanation often is that under previous apparent health there lay an actual unsoundness. This may be the case in the plant world, and a specimen be secretly diseased which we think is flourishing. Again, he argues that another proof the mischief is caused by insects is the success he has found in local applications of a suitable kind, but the process employed by its cleansing effect might be equally good in curing a vegetable disease. I will concede, and in so doing perhaps may put a weapon into the hands of the other side, that there are mites which to the best of our knowledge do attack plants in health, though unhealthy ones may run greater peril of injury. As examples I may cite the too common red spider and the whole group of gall mites that swell or disfigure buds, leaves, and twigs. But it has long been recognised as a truth by entomologists, that in the economy of Nature hosts of other mites are constantly busy in the work of disintegrating what has begun to decay. Some come, therefore, to the moist patches to be seen in cankered Apples and Pears, and feast on the juices that exude, or, possibly, to feed on a microscopic fungoid growth that is developed on branches thus diseased. One naturalist tells me that he has examined cankered samples, but found no mites at all; still I would not argue from this, because they might have been washed off, or have migrated, or been devoured by parasitic enemies. Then there is this noteworthy and positive fact to be considered, that little parties of mites may be found upon the bark of fruit trees that are neither cankered nor diseased in any way. One of these is the tolerably abundant beetle mite called *Damæus geniculatus*, which occurs in parties made up of specimens of all ages, and which has been thought by the Germans beneficial to the trees rather than the reverse. This, I suspect, is not the species which Mr. Hiam has brought to light and elsewhere noticed, but probably Boisduval's *Acarus Pyri*, which would occur on both Pear and Apple. It appears to have been hitherto overlooked by entomologists here, and I hope shortly to be able to get its name determined by a competent authority in this division.—ENTOMOLOGIST.

#### NOTES ON CHRYSANTHEMUMS.

I do not agree with Mr. Iggulden that *Anemone Japanese Chrysanthemums* are eligible to be staged with the ordinary Japanese forms, as this would be setting a precedent which, in my opinion, is wrong. The name of *Anemone Japanese* was given to these newer forms as indicative of their distinctness, and I am not aware that any Japanese variety is in any way sufficiently allied to the *Anemone Japanese* in construction as to be admissible in a stand of *Anemone* flowers. If *Anemone Japanese* are to be allowed in Japanese stands, why cannot the ordinary Japanese flowers be staged with *Anemone Japanese*? Fancy an exhibitor staging a bloom of *Madame C. Audiguier*, for instance, in conjunction with *Fabian de Mediana*! Mr. Iggulden would be compelled to pass this in the same way as he considers justifiable in the other case, and a pretty state of things we should get into soon. I do not think our regular *Chrysanthemum* judges are likely to allow this. I think judges are more to blame than exhibitors in some cases for allowing such mistakes to pass. Intending exhibitors see that Mr. So-and-so was awarded first prize, having such and such varieties in his stand, and when hard pressed to find the necessary number of blooms of the proper kinds fall back on these convenient auxiliaries. I know that no rule has been laid down for strict guidance, nor can I see how rules can be made to meet every extreme case that may crop up; but I do not mean the case in question to be one of these extremes. It was simple enough to my mind.

*Chrysanthemum* societies with any pretensions to greatness should make separate classes for the *Anemone* and *Anemone Japanese* type, because the latter are so much more attractive that the former is almost sure to get elbowed out of the exhibition room; at any rate, they are too stiff in appearance alongside of their more gracefully disposed brethren, and public taste is more in favour of freedom or even fantastical shapes than strictly formal outlines. The cause of so few additions to the incurved section is through seed being produced so sparingly I presume, and the present general system of growing *Chrysanthemums* is certainly not adapted to the production of sports, therefore I am not at all surprised that so few new ones appear. Some persons speak disparagingly of sports. I have yet to learn why they are not so good as seedlings. Take Lord Alcester, for instance, which was a sport, I believe, from *Golden Empress*, and has worked its way quite to the front. It is a grand variety, producing more first-class flowers on a given number of plants than any other variety in existence when grown under favourable circumstances, which cannot have been the case in Mr. Iggulden's hands, or he would not be compelled to dub this variety "tricky," and his blooms must have been in a bad state when "all the dressing in the world" failed to restore their lost form. I am afraid Mr. Iggulden's experience of Lord Alcester during the last season is not encouraging to persons who contemplate growing his lordship during the coming season. I advise them not to hesitate, as perhaps the "trickiness" was in the hands of the grower, and not in the variety; and also that "all the dressing in the world" was not applied to the flowers in question.

Double centres in flowers are in my opinion the result of a check some time during the early stages of the growth of the buds, probably by lack of water in hot weather. I am strengthened in this idea by the fact that more complaints are heard of double centres after hot dry seasons than after those moderately dry. Ripe wood must be had if high-class flowers are desired, but it must not be prematurely effected; regularity must be the order of the day if success is to be obtained.

I am much surprised to hear of an incurved sport from Mrs. Forsyth,

which is a reflexed flower. Is the parent rightly named? *Golden Queen* of England gave some trouble last season through its persistency to reflex its petals instead of incurve them. This, again, was not the fault of the variety, but was caused by the blooms being grown at the wrong time.

Mabel Ward and *Eve* are fast becoming obsolete; the petals are much too narrow, and they are so uncertain in producing blooms large enough for exhibition purposes. *Jardin des Plantes*, the finest of all the yellows, is somewhat spoilt by the habit it sometimes has in giving blooms with split centres, particularly when the flowers are grown large in size. Mr. Bunn is a capital flower, something like the former in colour, but its great objection as a decorative variety is its tendency to droop when in bloom, the peduncles being so thin.

*Princess of Wales* and Mrs. Heales have as usual caused some controversy as to their distinctiveness. I consider exhibitors have themselves to blame often in this matter. When once known these varieties are easily recognisable. It is quite possible to cut flowers closely resembling both varieties from one plant of *Princess of Wales*. This is caused by the buds being "taken" at different stages. Those resembling Mrs. Heales are "taken" too soon, thus causing the paler colour. They are exactly alike in growth, colour of foliage, and shape of the buds. The colour of *Princess of Wales* is white suffused with a very pale shade of pink, and each petal is striped with the same colour; this is when produced in its proper and natural character. Flowers not having these characteristics when staged lose a point when in competition, and when judged by men who know the character and quality of the variety. Mrs. Heales is generally a little smaller in size than the *Princess*; its colour is white, suffused with pale cream, no trace of pink being discernible except when the bottom petals get tinged with age.

I do not yet know what class *Salteri* belongs to; to me it does not appear to belong to any, so peculiar is it in shape. I imagine it will have a very short existence amongst the general growers. Japanese varieties are getting too numerous; there are many worthless forms in existence. I think catalogue descriptions of new varieties are much too elaborate; if more simple, I am sure it would be of greater service in selecting. It is impossible for gardeners to grow all the new kinds as they are introduced. Fascinated by the descriptions in catalogues, growers burden themselves with far too many varieties, which often ends in disappointment when the time for blooming arrives.

Pompons and *Anemone Pompons* ought to be disbudded and staged with about 6 inches of stem with the foliage attached. These tied in bunches of three or five are very attractive. When they are disbudded the true character of each variety is brought out, and the work of awarding the prizes is more simplified than when staged in bunches of perhaps ten or a dozen blooms on each shoot. I strongly recommend the disbudding system for exhibition, but for home decoration I prefer some grown as bush plants with a profusion of flowers.—E. MOLYNEUX.

#### POTATO EXHIBITIONS—COLOURING POTATOES.

SOME of the Potato growers who visited the Birmingham Cattle Show at Bingley Hall in December have a strong conviction that some of the samples of red and purple Potatoes exhibited there were artificially coloured, and that this led to their taking the leading prices. I did not see the exhibits, but a gentleman connected with a leading seed firm in Birmingham told me that he felt confident that some of the sorts had been dyed or painted to lighten their colour, and recommended me to write to a well-known seed firm in the midlands for further information.

I did so—I enclose you their letter in reply—and their letter I take the following extract—"As regards the painted Potatoes at Birmingham, there were the usual sorts, such as *Reading Russet*, *Prizetaker*, Mr. Bresee, &c., which were very coloury even when the dust settled upon them, the colour almost equal to Venetian red, but of a more carmine rose tint."

I mention the circumstance as I think it is so desirable that a stringent rule should exist in every schedule that any attempt whatever to lighten the natural colour of the Potato should lead to disqualification. If it is a fact, and my informant is emphatic in his opinion, that the tubers in question were artificially coloured, what were the judges about not to have disqualified them?—SOLANUM.

#### ROSE PRIDE OF REIGATE.

TWO or three years ago Mr. James Brown, gardener to A. J. Waterlow, Esq., Great Doods, Reigate, exhibited a bloom of a sport from *Comtesse d'Oxford* at one of the National Society's Kensington shows, and it at once attracted much attention, though some doubt was expressed at the time as to whether it would prove constant. Since then it has been shown on several occasions, and the characters were each time found to be so true that on July 23rd of the present year the Floral Committee of the Royal Horticultural Society awarded a first-class certificate for it to Messrs. Paul & Son, Cheshunt, who had purchased the stock. Like its parent, it is of good globular form and a pleasing light crimson colour, but this is strikingly diversified by regular pure white stripes through the petals, giving the bloom a remarkable and beautiful appearance. In a stand of Hybrid Perpetuals it is most conspicuous, and as the sport shares the characters of the parent, which is described by the National Rose Society



as "a reliable Rose," there is every reason to expect that it will become very popular.

The bloom represented in our woodcut (fig. 6) was forwarded to us by Messrs. Paul & Son, and faithfully represents the form and markings.

#### A GLIMPSE OF AFRICAN VEGETATION.

THE following extracts from a most interesting book called "The Kilima-Njaro Expedition," which is just published, and which should be read by all who can obtain it, may interest some of your readers. I may first say that "Kilima-Njaro" is a huge mountain mass in Eastern Africa, consisting of two giant peaks and many smaller ones. It is situated below the third parallel south of the equator, and is distant about 175 miles in a straight line from the coast. The highest peak is called Kibo, and is 18,880 feet above the sea. The lesser peak is K'mawenzi, and

Heaths begin to appear, and the Orchilla Lichen covers nearly all the forest with a grey-green veil. Between 8000 and 9000 feet the giant Senecios are met with, and continue upwards till near the borders of the snow. Gorgeous crimson Gladioli, pale pink and mauve, and cerulean blue lilies grow to great altitudes; indeed, some of the flowers of the grassy uplands between 10,000 and 14,000 feet, are particularly brilliant in colour. There are vivid blue Cynoglossums, the blush-pink Everlastings, the yellow Euryops, the strange straw-coloured Proteas, with red bracts and red leaf-shoots, the small coloured Lobelias (*L. Deckeni*), and many others which it would be tedious to catalogue."

After an altitude of 14,000 feet "one is left with a few Artemisias (*Southernwood*), Heaths, and Everlasting Flowers, until at length they too disappear, and there remain little red and greenish Lichens, expanses of yellow sand, lead-coloured rocks, black boulders, and snow."

"To the ordinary mind, even of an unreflecting traveller, there is something very wonderful and imposing in the aspect presented by such a



Fig. 6.—PRIDE OF REIGATE.

attains an altitude of 16,250 feet. Both ascend above the snow line, and are craters of extinct volcanoes.

Much more interesting matter concerning these grand mountain peaks is given in the introduction to the book, but space forbids quotation here. I would, however, hope that room may be found for the following.

"The Flora of Kilima-Njaro is naturally interesting, as may be imagined from the extraordinary range of climate between the eternal snows of the summits and the hot tropical plains at the base."

"The lower slopes of Kilima-Njaro are exquisitely green, and scarcely a patch of earth remains uncovered, but the general aspect of vegetation recalls our English Devonshire and not the tropics. Bushy trees crown the hilltops, or choke the narrow valleys. The grassy downs are covered with patches of Bracken and scented with low-growing Mint.

"The native lanes are bordered with Brambles and magnificent Ferns, some of which belong to common European genera. There are, besides, other plants more properly African which do not mind the colder climate of the uplands, such as *Dracenas*, *Aloes*, *Strychnias*, *Balsams* and ground Orchids. In some of the stream valleys the *Musa Ensete*, a wild Banana, grows luxuriantly up to about 6000 feet and down to 3000 feet, or a little lower if there is water."

"At a height of 7000 or 8000 feet Tree-Ferns may be met with belonging to the species *Lonchitis pubescens*. Then above that the arborescent

region as Kilima-Njaro. The summits clothed with virgin snow, the upper regions bearing the humble plants of temperate climes, the Heaths, the Hound's-tongues, the Forget-me-nots, the Buttercups, Clematises, Anemones, Violets, and Geraniums, the Bracken, Polypodies, and Male Fern that are always associated with the Flora of our chilly lands; and then, descending through rich forests of Tree Ferns, *Dracenas*, and Moss-hung Mimosas to the vegetable wealth of the equatorial zone, to the wild Bananas, the Palms, the Orchids, the India-rubber Creepers, the Aloes, and the Baobabs that are among the better known of the myriad forms of vegetation clothing the lower spurs and ramparts of Kilima-Njaro."

The book, which is a handsome one, extending to over 550 pages, is copiously illustrated from sketches by the author, and teems with interesting descriptions of plant life, scenery, insect, animal, and human habits and customs. The natives, though living in such beautiful surroundings, seem to have their full share of human weaknesses, war being fiercely carried on by one tribe against another. Our author nearly came to grief among their quarrels. But it is to Mr. Johnston's descriptions of plant life that readers of the Journal will most naturally turn, and I think no one will say after reading them that Kilima-Njaro is likely soon to be excelled in the way of a mountain wonderful, beautiful, and interesting from base to summit.—J. THOMSON.

NOTE.—The book is published by Kegan Paul, Trench & Co., Patern-



noster Row, London. Mr. Johnston started from London on his travels in the beginning of March, 1884, spent a month at Zanzibar, and then proceeded to Kilima-Njaro. Mr. Johnston returned to London on the 31st Dec., 1884, as he says, "Not much more than six weeks after I last saw the snow peaks of Kilima-Njaro from the reedy shores of Lake Jipe;" and this, with some delays by the way; so much for transit in this age of steam.—J. T.

[We have read attentively the book referred to. The author is an accomplished scholar, experienced traveller, and graphic writer. His work teems with interest, and the information imparted cannot fail to be of great value in the colonisation of what is aptly described as the "new world of the nineteenth century." It should be added that the mountain of Kilima-Njaro is so large that more than one African kingdom is established on its fertile and beautiful slopes, and the thoughtfulness and enterprise of the natives are displayed in the storage and ready method of conducting water to cultivated plateaus—a hopeful sign of coming civilisation.]

## COMMITTEES OF THE ROYAL HORTICULTURAL SOCIETY FOR 1886.

THE following are the names of the members of the three Committees of the above Society nominated for the ensuing year.

### SCIENTIFIC COMMITTEE, 1886.

#### CHAIRMAN.

Sir Joseph Dalton Hooker, K.C.S.I., M.D., C.B., F.R.S., V.P.L.S., Royal Gardens, Kew.

#### VICE-CHAIRMEN.

Godman, F. Du Cane, F.R.S., 10, Chandos Street, Cavendish Square.

Grote, Arthur, F.L.S., 42, Ovington Square, S.W.

Masters, Maxwell T., M.D., F.R.S., Mount Avenue, Ealing, W.

#### SECRETARY.

Rev. G. Henslow, F.L.S., F.G.S., Drayton House, Ealing.

Baker, J. G., Royal Herbarium, Kew.

Bennett, Alfred W., M.A., B.Sc., F.L.S., 6, Park Village East, W.

Berkeley, Rev. M. J., F.R.S., Sibbertoft, Market Harborough.

Boulger, G. S., 9, Norfolk Terrace, Bayswater, W.

Brockbank, Wm., F.L.S., Brockhurst, Didsbury.

Burbridge, F. W., F.L.S., Trinity College Gardens, Dublin.

Church, A. H., F.C.S., Royston House, Kew.

Dod, Rev. C. Wolley, Edge Hall, Malpas, Cheshire.

Elwes, H. J., Preston House, Cirencester.

Glalsher, James, Dartmouth Place, Blackheath.

Houston, D., F.L.S., 179, Mayall Road, Herne Hill, S.E.

Lee, Wm., Downside, Leatherhead.

Lowe, Dr. Wm. Hy., Woodcote, Inner Park Road, Wimbledon.

Llewelyn, J. T. D., F.L.S., Peullergare, Swansea.

Lynch, R. Irwin, A.L.S., Botanic Gardens, Cambridge.

McLachlan, R., F.R.S., Lime Grove, Lewisham.

Michael, Albert D., Cadogan Mansions, Sloane Square, S.W.

Murray, G., Natural History Museum, South Kensington, S.W.

O'Brien, James, Harrow-on-the-Hill.

Pascoe, F. P., F.L.S., 1, Burlington Road, Westbourne Park, W.

Plowright, C., 7, King Street, King's Lynn.

Ridley, Henry N., B.A., Natural History Museum, South Kensington, W.

Smee, A. H., The Grange, Wallington, Surrey.

Smith, Worthington G., F.L.S., 33, Kyverdale Road, Stoke Newington, N.

Wilson, A. Stephen, North Kinmundy, Summerhill, Aberdeen.

### FRUIT COMMITTEE.

#### CHAIRMAN.

Hogg, Robert, LL.D., F.L.S., 99, St. George's Road, S.W.

#### VICE-CHAIRMEN.

Blackmore, R. D., Teddington.

Lane, John E., Berkhamstead.

Rivers, T. F., Sawbridgeworth.

#### SECRETARY.

Archibald F. Barron, Royal Horticultural Society, Chiswick, W.

Bennyard, George, The Old Nurseries, Maidstone.

Burnett, J., The Gardens, Deepdene, Dorking.

Crowley, Philip, Waddon House, Croydon.

Denning, W., The Gardens, Lonsborough Lodge, Norbiton, Surrey.

Ellam, Joseph, The Gardens, Cliveden, Maidenhead.

Ford, Sidney, The Gardens, Leonardslee, Horsham.

Godman, F. Du Cane, F.R.S., 10, Chandos Street, Cavendish Square, W.

Goldsmith, G., The Gardens, Floore House, Weedon.

Haywood, T. B., Woodhatch Lodge, Reigate.

Mason, Major F., The Firs, Warwick.

Miller, W., The Gardens, Coombe Abbey, Coventry.

Miles, George T., The Gardens, Wycoube Abbey, High Wycombe.

Norman, G., Hatfield House, Hatfield.

Paul, William, Waltham Cross, N.

Roberts, J., The Gardens, Gunnersbury Park, Acton.

Ross, Chas., The Gardens, Welford Park, Newbury.

Rutland, F., The Gardens, Goodwood, Chichester.

Saltmarsh, T. J., The Nurseries, Chelmsford.

Silverlock, Charles, 412, Strand, W.C.

Smith, James, The Gardens, Mentmore, Leighton Buzzard.

Sutton, Arthur W., Reading.

Veitch, H. J., F.L.S., Royal Exotic Nursery, Chelsea, W.

Warren, W., Worton Gardens, Isleworth.

Weir, Harrison, Henwick Lodge, Lausdown Road, Tunbridge Wells.

Willard, Jesse, Holly Lodge Gardens, Highgate, N.

Woodbridge, John, The Gardens, Syon House, Brentford.

### FLORAL COMMITTEE.

#### CHAIRMAN.

Geo. F. Wilson, F.R.S., Heatherbank, Weybridge Heath.

#### VICE-CHAIRMEN.

O'Brien, James, West Street, Harrow-on-the-Hill.

Hibberd, J. Shirley, 1, Priory Road, The Green, Kew.

Williams, B. S., Victoria Nursery, Upper Holloway.

#### SECRETARY.

Archibald F. Barron, Royal Horticultural Society, Chiswick, W.

Baines, Thomas, Fern Cottage, Palmers Green, N.

Ballantine, H., The Dell Gardens, Egham.

Bealby, William, The Laurels, Roehampton Park, Putney Heath, S.W.

Bennett, H., Shepperton, Walton-on-Thames.

Cannell, Henry, Swanley.

Dean, R., Ranelagh Road, Ealing.

Dominy, John, 11, Tadema Road, Chelsea, S.W.

Douglas, J., The Gardens, Great Gearies, Ilford, E.

Dunfield, G., The Gardens, Bamford Lodge, Winchmore Hill, W.

Herbst, H., Richmond Road, Kew, Surrey.

Hill, E., The Gardens, Tring Park, Tring.

Holmes, W., Frampton Park Nurseries, Hackney.

Hudson, James, The Gardens, Gunnersbury House, Acton.

Kellock, W. B., F.L.S., Stamford Hill, N.

Lalng, John, Stanstead Park, Forest Hill, S.W.

Lendy, Major, Sanbury-on-Thames.

Low, Hugh, The Nurseries, Clapton, E.

Low, Dr. W. H., Woodcote, Lower Park Road, Wimbledon.

Masters, Maxwell T., F.R.S., Mount Avenue, Ealing.

Noble, C., Sunningdale Nursery, Bagshot.

Paul, George, "Old" Nurseries, Chess-hunt, N.

Perry, Amos Isaac, Stamford Road, Page Green, Tottenham.

Pollett, H. M., Firs, Bickley, Kent.

Turner, Harry, Royal Nursery, Slough.

Walker, J., Whitton, Middlesex.

Wilks, Rev. W., Shirley Vicarage, Croydon.

## KEW GARDENS IN WINTER.

A REFERENCE to Kew Gardens and their work, says the *Daily News*, can never be altogether unseasonable, simply because the sphere of that work is the British Empire. Whatever may be the season or the weather on the banks of the Thames, we may be quite sure that somewhere about the globe the prime of the summer sunshine is fostering into perfection groves and plantations, woods and shrubberies, that have originally emanated from this great national nursery, to the directorate of which Mr. Tbiselton Dyer has just been advanced. This gentleman, who has been connected with Kew for the past thirteen years, succeeds Sir Joseph Hooker, who retires from this onerous and responsible position in order that he may devote himself to the scientific arrangement of the flora of India at the splendid herbarium which forms part of the establishment here.

Perhaps when leisured Londoners have advanced a little further in their artistic education they may find a good deal to attract them down to Kew Gardens, even in the winter time, and even apart from the wonderful display of Ferns and foliage and flowers always to be enjoyed under the ten or fifteen acres of glass comprised within the gardens. In the depth of winter the grounds are always more or less beautiful—sometimes exquisitely beautiful—with their majestic timber, their masses of shrubs and verdant lawns, here and there touches of brilliant colour or long vistas of grey and blue mist. Nothing of the kind could be more enchanting—except perhaps the same thing under bright sunshine—than the scene down here just after the recent heavy snowfall. Of course wooded country is always charming after a fall of snow, but on few spots of the same extent anywhere on the face of the earth does the snow drape so wonderful a variety of plant life as here in Kew Gardens. The Cedars and Cypressess, Deodars, Pines, and Firs were magnificent objects, and here and there were clustered among the delicate tracery of the deciduous trees in the most bewitching combinations. A heavy fall of snow always does much damage here; it crushes down shrubs and wrenches off great limbs of trees; but even the wreckage is muffled up into forms of fantastic beauty, and while the snow remains hardly detracts from the quaint unfamiliar charms of the scene.

Few people, comparatively speaking, find their way down here in the winter, and perhaps fewer still have any idea of the nature of the work carried on here all the year round, at a cost of £20,000 a year, and with a staff numbering altogether some 170 or 180 people of one grade or another. There are a great many botanical gardens in different parts of the world, and parks and pleasure grounds are of course still more numerous; but Kew is quite unique, simply because the British Empire is unique. For the fifty or sixty governments under the British Crown this establishment is the great botanical clearing-house, and in the depth of winter just as in the height of summer they are taking in here seeds and plants from all corners of the earth, and either propagating them themselves or transmitting them for the enrichment of some distant dependency where they have hitherto been unknown. Exchanges are also made with foreign countries, and however stormy the political horizon may be there is a constant influx of correspondence into the pigeon-holes of the Director's office here, in all the principal languages of Europe, all of it profoundly pacific in its tone, and purely scientific in its interest. "Why can't they settle these squabbles on a botanic basis?" wrote the philosophers of St. Petersburg the other day when England and Russia seemed to be drifting into war over the Afghan difficulty. However high the tide of excitement may rise among nations and their rulers, Kew and its correspondents go on their beneficent way as placidly as though all the world had actually beaten their swords into ploughshares and their spears into pruning-hooks.

There is, perhaps, no department of the public service more thoroughly cosmopolitan than this office of the Director of Kew Gardens. It is a centre of collection and distribution for the whole earth, and a focus of light converged from all quarters of the world and reflected upon whomsoever may need it for scientific or commercial purposes. A broker, for instance, in the City gets some vegetable product transmitted to him, say, from some part of India. This correspondent out yonder wants to know if he can find a sale for it. The broker, however, is in profound ignorance as to the nature of the plant or the uses to which it may be put. He will probably find that there is more information available at Kew than he would get at if he were to go out to India and spend six months in investigating the subject. There are probably about 14,000 species of plants in India, and in the herbarium at Kew Gardens they have actual specimens of somewhere about 11,000 of them. The chances are, therefore, that this vegetable product, whatever it may be, is among the treasures of the herbarium, and that ample information may be obtained about it. This herbarium is a department of Kew not accessible to the ordinary visitor to the gardens. It is located in the old-fashioned red brick house on Kew Green which was formerly occupied by the King of Hanover. A fine lofty and spacious hall with two galleries all round it was added to the back of this house about ten years ago, and here is gathered a collection which missionaries, travellers, naturalists sent out with military expeditions, and resident botanists all over the world are continually enriching, and which is rapidly becoming completely representative of the flora of all the more familiar regions of the earth, as well as of a great many of the more remote. The specimens here are carefully dried and neatly arranged in sheets of cartridge paper and stored away in cases on shelves, after the manner of a library. This is not open to the public; but in the way just explained the public have the benefit of this collection, and anybody who can show a reasonable ground for desiring access to it is readily admitted. It is not a school for students of elementary botany, but anyone who can make it helpful in their study of the science in its higher branches is freely welcome. Last year several Continental botanists of distinction had the privilege of studying here and the use of the considerable library attached to the herbarium. It is in one of the rooms of this establishment that Sir Joseph Hooker is now about to settle down to the completion of his task with the Indian flora after some twenty years of service as Director of the Gardens over which his father, Sir William Hooker, presided for just upon a quarter of a century. Sir William's predecessor, by the way, retired after fifty years' service, so that for nearly a century past this office of Director of Kew Gardens has been held by only three men. This department practical science certainly would seem to be very conducive to longevity.



No other nation has such an institution as Kew, and no other nation has so much need of it. Its influence on our Colonial Empire has been simply incalculable, and the annual outlay upon it—even if the public derived no benefit from the institution as a pleasure ground and a place of education—would certainly be a mere flea-bite if we could only show in comparison with it the commercial advantages it has conferred. The expense, by the way, would be enormously greater but for the system of exchange that has been so widely developed. Almost everything in the way of seeds and plants for cultivation which Kew requires is obtainable by this system, or by the gifts of Englishmen who have settled abroad and who feel a kindly interest in this great establishment which so pleasantly links together our colonial empire. A resident in Burmah, for instance, lately sent home an offer of a fine collection of Orchids, which were gladly accepted. East India Orchids are easily obtainable; but a few South Americans present an exception to the general rule. We have comparatively little intercourse with the South American continent, and Orchids from that quarter are collected mainly by the travellers of nurserymen, from whom of course they have to be bought. But this rarely happens. Kew has something which the West Indies want, and in exchange for which the West Indies will send something that they have and which Kew wants. Or exchanges are effected between the gardens here and other hotanic gardens throughout the country, or with nurserymen or private cultivators and amateurs. Growers all over the world have thus an easy medium for the supply of their wants, and, whether their object is to introduce altogether new things or to improve their stock by the substitution of newer kinds, they will find what they want by communicating with Kew. Thus some time ago Jamaica growers of Pine Apples wanted a new stock. The Director of Kew was able to obtain suckers of the very best kinds in cultivation from the gardens of the Queen, the Duke of Devonshire, Lord Rosebery, and one or two other distinguished growers in England. In other ways also this establishment exerts a great influence on commercial affairs. Many of our colonists are apt to get very much behind their times and to fall very much into the dark as to what is going on in the great world around them. Thus, it recently came to the knowledge of the Government that Oranges were being shipped from Sicily for the New York market, while Jamaica—splendidly adapted for Orange-growing—was rapidly being ruined in the attempt to bring their cane sugar into the market in competition with the bounty-supported Beet-growers of the Continent. Oranges certainly ought to be taken into New York from Jamaica more cheaply than they can be taken from Sicily, and the attention of the Director of Public Gardens and Plantations of Jamaica has been called to this opening for enterprise. That is an illustration of what is continually being done by this great central dépôt. The study of botany is promoted all over the world, the productiveness of our colonies is immensely augmented, every land under the sun is being beautified by the introduction of exotic plants, and here close to the greatest centre of our population we have a garden of the most enchanting beauty, and a collection of foreign plants which are the envy of scientific foreigners all over the world. Some day, perhaps, we may have added to Kew Gardens the forty acres of waste land at the present time given up entirely to solitude and hosts of rabbits, just at that corner of the grounds facing Sion House. At present it is of no use to anybody; there is nothing in it but thickets and trees, and the Queen's cottage, into which no one ever goes, and the whole domain of forty acres is religiously wired round sufficiently to keep out the public, but not sufficiently to keep in the rabbits.

## ROYAL HORTICULTURAL SOCIETY.

JANUARY 12TH.

The severe weather deterred many exhibitors from contributing to this meeting, and in consequence few plants were shown. It was indeed the smallest, and but for the Orchids would have been the least important gathering that has been held at Kensington for some time.

**FRUIT COMMITTEE.**—Present: Dr. Hogg, in the chair, and Messrs. Harry J. Veitch, G. Norman, W. Warren, John Woodbridge, Charles Ross, G. T. Miles, Wm. Denning, J. T. Saltmarsh, Arthur W. Sutton, Sidney Ford, Wm. Paul, R. D. Blackmore, Chas. Silverlock, Phillip Crowley, and John Burnett. Mr. Allen, The Gardens, Gunton Hall, sent a seedling Apple called Lady Suffield, which was considered too small for a kitchen Apple, and not good enough in flavour for dessert. Mr. Mitchell, The Gardens, Aberaman, Aberdare, sent a fine specimen of Smooth Cayenne Pine, to which a vote of thanks was awarded. Mr. John Walker, Thame, Oxon, sent some specimens of Walker's Exhibition Onion, a good strain of the Reading or Nuneham Park variety, to which a letter of thanks was awarded. A very interesting collection of stewing Pears was exhibited from the garden of the Society at Chiswick, and the Committee made a selection of varieties which they recommended should be stewed and exhibited at the next meeting.

**FLORAL COMMITTEE.**—Present: G. F. Wilson, Esq., in the chair, and Messrs. J. Douglas, James Walker, H. Bennett, W. Bealby, H. Herbst, Thos. Baines, G. Duffield, W. Holmes, R. Dean, H. Ballantine, A. H. Lendy, J. Dominy, H. Cannell, James O'Brien, E. Hill, G. Paul, and Harry Turner.

**ORCHIDS.**—*Pruning Lælia.*—The meeting owed its principal interest to the Orchids shown by various growers, and one specimen which received the close attention of the Committee was a handsome example of *Lælia anceps* from Mr. Blandford, gardener to Mrs. Haselfoot, Moor Hill, Westend, Southampton, for which a cultural commendation was awarded. The plant had over forty pseudo-bulbs with strong healthy leaves of a rich green colour, indicating the most vigorous health, and it bore ten spikes 3 to 4 feet high, with four or five flowers each. It was shown as an example of the pruning system, and in a note accompanying the specimen it was stated that the plant had been subjected to pruning since 1873, the old pseudo-bulbs being removed when the leaves had faded. It was also said that the plant had been in the same pot for nearly five years. There was some difference of opinion concerning this pruning, as it is termed, but the general view was that the plant had been well grown and had not benefited by the removal of pseudo-bulbs in any way except in rendering it neater in appearance.

*Lælia anceps* varieties.—From Baron Schröder's garden, The Dell, Egham, Mr. Ballantine brought a beautiful collection of *Lælia anceps* flowers, representing all the best varieties in cultivation and showing the

beauty of this useful winter-flowering Orchid to the best advantage. *L. anceps alba* has pure white flowers except a yellow centre in the lip. The sepals and petals are broad, and the flower substantial in general appearance. *L. anceps Barkeriana* is a noted rare variety, remarkable for the grand intensely rich crimson lip and rosy purple sepals and petals. *L. anceps Dawsoni* is a superb form, one of the most valuable and beautiful of all. It was named in honour of the late T. Dawson, Esq., of Meadow Bank, in whose collection it first flowered in 1867. It also flowered a few months later at Gravelly Hall, Birmingham, and this plant was shown at South Kensington at the time. The flower is very distinct from other varieties, the petals being exceedingly broad, and with the sepals are pure white. The lip is slightly contracted and reflexed near the tip, which is of a fine purplish crimson hue, the throat being holdly veined with a richer tint of the same colour, giving the flowers a particularly handsome appearance in contrast with the white sepals and petals. A variety was shown which is believed to be *L. anceps Sanderiana*, and is something like *Dawsoni*, but inferior to it in beauty, the colour of the lip being paler, and the veins less distinct. *L. anceps Hilliana* has white flowers, the lip yellowish and tinged with rose at the side. *L. anceps rosea* has a rose tint suffusing the lip and petals, and *L. Williamsiana* has white flowers, the lip yellow in the centre, and the throat well streaked with crimson. An unnamed variety of *L. anceps* with purplish sepals and petals, and a broad, square, dark crimson lip, was preferred by some to *L. Barkeri*. Several other varieties have received names such as *delicata*, *grandiflora*, *Percivalliana*, *vestalis*, and *Veitchiana*, some of which are distinct and handsome, especially the last-named, which is also well grown in Baron Schröder's collection. In addition to the *Lælia* flowers Mr. Ballantine had a raceme of *Odontoglossum crispum* Bonniannum, which has neat rounded flowers of moderate size, white with a bluish tint, each sepal having one or two bold round blotches of brown near the tip.

De B. Crawshay, Esq., Rosefield, Sevenoaks, showed a small collection of Orchids, conspicuous amongst them being *Sophranitis grandiflora* splendens, a highly coloured variety, with flowers 2½ inches in diameter. *Lælia anceps hlanda*, with bluish sepals and petals and a crimson lip; *L. Crawshayana*, crimson; *L. anceps Williamsiana*, the pale golden *Odontoglossum aureum*; and *O. crispum* Stella, a white variety, with spreading sepals and petals were also noticeable. C. Dorman, Esq., The Firs, Laurie Park, Sydenham, exhibited a curious little Brazilian Orchid, *Promenaea stapelioides*, the flowers small and creamy white, the lip strangely dotted with maroon, like some of the *Stapelias*, to which it owes its name. *Odontoglossum Insleayi*, from the same source, is a fine coloured variety, with flowers of great size; but *Cypripedium insigne* Dormanianum did not possess any remarkable characters, though the *Odontoglossum tripudians* superbum, which was certificated, is an extremely handsome Orchid, and amply deserved the honour. Mr. H. James, Castle Nursery, Lower Norwood, had a flower of *Cattleya Trianae* Measuresiana, with broad petals, a brilliant crimson lip, and a gold throat. A cone of *Macrozamia Dennisoni* over 2 feet in length was shown from the same nursery. The New Plant and Bulb Company, Colchester, sent a flower of a pretty light pink *Cattleya*.

**Primulas.**—Messrs. James Veitch & Sons, Chelsea, were awarded a bronze Bannian medal for a group of Primulas comprising about 100 plants, representing several varieties of approved merit. The Queen is a white form, of good habit, and bearing large pure flowers in compact trusses. Improved White, with rather larger flowers, is said to be a selection from The Queen. Improved Blue is one of the best of the so-called "blue" Primulas. *Primula sinensis cristata* fl.-pl. is a double white-flowered variety, with round crisped leaves. The brilliant Chiswick Red was also well shown. Messrs. H. Cannell & Sons, Swailey, exhibited blooms of their principal Primulas, most diversified in colour and distinguished by their admirable substance.

**Tea Rose Sunset.**—To indicate the floriferous character and usefulness of this Rose Messrs. Paul & Son, Cheshunt, exhibited a number of buds and flowers such as they are still cutting freely from the plants in pots under glass. The colour is a pleasing bronzy yellow, the blooms are neat and in the buds are excellent for buttonholes or bouquets, possessing moreover a powerful fragrance. It is very highly commended for culture wherever flowers are in much demand.

**Late Chrysanthemums.**—Mr. John Walker, Thame, Oxon, had several stands of late Chrysanthemum blooms which, though not of the size that exhibitors like to see, were such as would be highly prized in gardens where much floral decoration has to be done. The varieties were Fair Maid of Guernsey, Ethel, Peter the Great, Père Delaux, Elaine, and Jardin des Plantes. Mr. Walker states that he strikes the cuttings in March, and when placed under cover the plants are grown in a north house, where they come on slowly until wanted. For all the exhibits named votes of thanks were accorded.

## PLANT CERTIFICATED.

*Odontoglossum tripudians superbum* (C. Dorman, Esq.).—The finest variety of *O. tripudians* that has yet been obtained. The flowers are over 3 inches in diameter, the sepals oval shining brown with a yellow tip, the petals blotched with brown on a yellowish ground and tipped with the same hue. The lip is broad, fringed and blotched with bright purple.

**SCIENTIFIC COMMITTEE.**—Dr. M. T. Masters in the chair.

*Odontoglossum bictoniense* with *Foliaceous Bracts*.—Mr. O'Brien showed a peduncle about 5 feet in length, with the upper bracts leafy. He attributed it to a check upon the reproductive energy which the plant had received, in consequence of which the vegetative system had been encouraged, as seen in the lengthened stem and leafy bracts.

*O. Andersonianum*, *Synanthy* of.—He also showed flowers of this species in a synanthic condition, with two lips, two columns, &c.

*Nerine Hybrid.*—He also exhibited pink flowers of a so-called *N. cin-naharine* raised by himself; it was referred to Kew for identification.

*N. flexuosa Hybrid.*—He showed a leaf about 16 inches long and 2 inches broad, of a hybrid between *N. flexuosa* and *N. Fothergillii*, both of which have much narrower leaves, showing the effect of crossing.

**Mahwah Flowers, Sugar in.**—Professor Church gave an interesting account of his researches into the chemical constitution of the sugary corollas of *Bassia latifolia* of India. It was said that it would supersede the use of Beetroot and the Sugar cane; but, he remarked, this would depend upon the character of the sugar. He had analysed some samples of the sun-



dried flowers, and found they yielded 56 per cent. of sugar and 15 per cent. of water; but a further analysis showed that sucrose (cane sugar) was only present in the proportion of 3·2 per cent., while glucose (laevulose and dextrose) yielded 52·6 per cent. Hence it cannot possibly be a substitute for Cane or Beet sugars. Of nitrogenous matters the flowers contained 2·2 per cent. The usual proportions of useful nitrogenous food should have 1 part of flesh-formers to 5 saccharine; but in the case of *Bassia* it was only 2 to 55. He further remarked that in the nectaries of nearly all British flowers the sugar was Cane sugar; but in young Grasses the sugar was glucose, and it was not until the lower leaves had begun to turn yellow that the glucose was converted into sucrose or Cane sugar. In the case of the Mahwah the sugar resides solely in the corolla; a fair size tree will yield about half a ton of fresh flowers; the seeds contain an edible oil.

A vote of thanks was unanimously given to Professor Church for his interesting communication.

*Macrozamia Denisoni*.—A fine male cone of this Australian plant (about 2 feet high and 8 inches in diameter at the base) was sent by Mr. H. James as the first instance of its flowering in this country.

*Begonia species*.—A small-flowered species with white blossoms and much-divided leaves was sent by Sir Trevor Laurence, which had come up with an Orchid. It was referred to Kew for identification.

*Griselinia littoralis abnormal*.—Dr. M. T. Masters showed shoots in which the axillary buds had become "uplifted," so as to be "extra axillary." On examining the buds microscopically, he observed that the bases of the leaves are at first horizontal, but that they subsequently became uplifted too, while the stem assumed a more flattened character.

*Hybrid Potatoes*.—Mr. W. G. Smith forwarded specimens of "hybrid" Potatoes obtained by the method of introducing "plugs" with eyes of one sort into other sorts, as described by him in the *Gardeners' Chronicle*, on "Potato Grafting" (January 9th, page 54). He also forwarded drawings of various sorts illustrative of the results obtained. Dr. Masters observed that both botanists and gardeners had questioned the possibility, but that his own experiments, as well as Mr. Smith's, had completely disproved the assertion. Mr. Henslow remarked that a gentleman in Warwickshire twenty-five years ago had tried it by binding together two halves of a red and white Potato, and that the resulting produce was intermediate in colour. Mr. O'Brien said that the attempts to unite hulbs of Lilies had as yet completely failed.

*The Climate of Cornwall*.—The Rev. George Henslow drew attention to a communication from the Hon. and Rev. J. T. Boscawen in the *Gardeners' Chronicle* for January 9th (p. 55), in which the author alluded to the great variations of temperature and the corresponding differences in the effect upon vegetation in his garden at Lamorran. Mr. Henslow observed that the peculiarities could be at least partly explained by a study of the distribution of cold in England. Mr. Boscawen compared that of Lamorran with the temperatures of Kent, Sussex, and Liverpool. It will be found that isotherms of 30° or 20°, as the case may be, often ran closely parallel with the coast line; or else, running parallel from Cornwall to nearly the meridian of 0°, it then turns abruptly northwards, cutting the E. coast at Newcastle. Hence it not unfrequently happens that Kent and Sussex are just without the isotherm which includes Cornwall. Similarly, following the isotherm round the west coast, an indentation occurs around Liverpool in consequence of its being on the great western plain (continuous with the Severn Valley). The next point to be observed is that the internal distribution of areas of low temperatures correspond with the more elevated tracts, showing that the lowering of the temperature is due to radiation. One of these "local centres" always occurs over the elevated region of Cornwall and Devonshire. As the Cornish tableland extends far down towards the Land's End, the effects of this cold area are doubtless felt at Lamorran. On the other hand, the S.W. coast reaps the benefit of the gulf stream, so that in ordinary winters Fuchsias, Escallouias, Hydrangeas, &c., are not cut at all. Lastly, individual causes of influence, such as depressed spots, where temperatures will be lower than on adjacent heights, exposure to W. or E., as the case may be, &c., as well as differences of soil, in addition to the character of the subjacent rock, which may be a good or bad conductor of heat. Taking all the above facts into consideration, Mr. Henslow suggested they were amply sufficient to account for the anomalous features of Lamorran.

*Plants Injured by Frost in Cornwall*.—The Hon. and Rev. Mr. Boscawen forwarded leaves and shoots of various shrubs, Camellia, Hydrangea, &c., more or less blackened by the late frost at Lamorran, as described by him in the *Gardeners' Chronicle*.

## JUDGING.

"CONSULT the Judges and act accordingly," is as far as I can see the only remedy advanced by "W. S.," page 590, towards the solution of the difficulty referred to by me at page 565, and a very weak and unsatisfactory one it appears to me to be, simply because it leaves the evil untouched and unremedied.

My desire was to point out the best and least offensive method of rectifying palpable and undoubted errors in judgment which unfortunately do sometimes, though seldom, occur at exhibitions. Of course "the Judges would be consulted," but what I proposed was a Court of Appeal in extreme and exceptional cases after the Judges had refused to alter their decisions. The Committee, even then, would not have power to reverse nor in any way interfere with the awards conferred, but exercise a discretionary prerogative by giving or withholding, as they thought fit, an extra or consolation prize to the injured exhibitor. "W. S." would cruelly allow the sufferer to go uncompensated without permitting the slightest chance of appeal, which to me seems an inconsiderate, unjust, un-English-like method of treating the question.

As to such a practice being likely to induce exhibitors unduly to clamour for prizes, I have too good an opinion of their sense of honesty and propriety, nor do I think it would have a prejudicial effect on Judges. On the contrary, it would, I think, act beneficially by inducing them to be even more careful than they hitherto have been. "W. S.'s" estimate

of the ability as judges of many of the gentlemen who form flower show committees may be different to mine, but in my experience I have never yet met a committee which has not comprised some amateurs and professionals who were in every respect qualified to act as judges, but for obvious reasons they would not act in that capacity at home, hence the necessity of engaging others. These reasons, however, would in no way debar them, either morally or legally, from acting in the capacity I have mentioned, as arbitrators in exceptional and extreme cases.

That such cases do sometimes occur is undeniable. Are they to continue without an attempt to remedy them? If not, what are the best means to adopt? The suggestions I ventured to make may not be perfect, but they do not appear likely to infringe the rights or privileges of either committee, exhibitors, or judges, and practically they would cause but little irritation to any concerned, while they would at least partially remedy the evil instead of leaving it, as it has been occasionally, a source of discord and contention.—T. CHALLIS.

## REVIEW OF BOOK.

*The Praise of Gardens: a Prose Cento, collected and in part Englished by ALBERT F. SIEVEKING; with Proem by E. V. B.* London: Elliot Stock.

THIS is one of the series of books issued by Mr. Elliot Stock in the quaint style of typography and paper with which readers fond of good and wholesome literature issued by that gentleman are already familiar. The object of the editor appears to have been to collect from the best sources the encomiums which the greatest writers, both ancient and modern, have bestowed upon gardens and gardening. We, who have been so long engaged in the pursuit, and derived both health and pleasure from the prosecution of it, are not surprised to find such a treasury of praise as Mr. Sieveking has collected in this volume; but there are many who cannot realise the enjoyment a garden gives, and to these we commend a perusal of this work.

The following extract from Horace Walpole on "Modern Gardening" will illustrate the contents of the work:—

A cottage and a slip of ground for a Cabbage and a Gooseberry bush such as we see by the side of a common, were in all probability the earliest seats and gardens: a well and hucket succeeded to the Pison and Euphrates.\*

As settlements increased, the orchard and the vineyard followed; and the earliest princes of tribes possessed just the necessities of a modern farmer.

Matters, we may well believe, remained long in this situation; and though the generality of mankind form their ideas from the import of words in their own age, we have no reason to think that for many centuries the term *garden* implied more than a kitchen garden or orchard. When a Frenchman reads of the Garden of Eden, I do not doubt but he concludes it was something approaching to that of Versailles, with clipped hedges, herbage, and trellis-work. If his devotion humbles him so far as to allow that, considering who designed it, there might be a labyrinth full of Æsop's fables, yet he does not conceive that four of the largest rivers in the world were half so magnificent as an hundred fountains full of statues by Girardon. It is thus that the word *garden* has at all times passed for whatever was understood by that term in different countries. But that it meant no more than a kitchen garden or orchard for several centuries, is evident from those few descriptions that are preserved of the most famous gardens of antiquity.

In the paintings found at Herculaneum are a few traces of gardens, as may be seen in the second volume of the prints. They are small square inclosures formed of trellis-work and espaliers,† and regularly ornamented with vases, fountains, and Caryatides, elegantly symmetrical, and proper for the narrow spaces allotted to the garden of a house in a capital city. From such I would not banish those playful waters that refresh a sultry mansion in town, nor the neat trellis, which preserves its wooden verdure better than natural greens exposed to dust. Those trellises in the gardens at Paris, particularly on the Boulevard, have a gay and delightful effect. They form light corridors, and transpicuous archours through which the sunbeams play and chequer the shade, set off the statues, vases, and flowers, that marry with their gaudy hotels, and suit the galant and idle society who paint the walks between their parterres, and realise the fantastic scenes of Watteau and Dufé.

From what I have said, it appears how naturally and insensibly the idea of a kitchen garden slid into that which has for so many ages been peculiarly termed a garden, and by our ancestors in this country distinguished by the name of a pleasure garden.

A square piece of ground was originally parted off in early ages for the use of the family—to exclude cattle and ascertain the property, it was separated from the fields by a hedge. As pride and desire of privacy increased the inclosure was dignified by walls; and in olives where fruits were not lavished by the ripening glow of nature and soil, fruit trees were assisted and sheltered from surrounding winds by the like expedient; for the innodation of luxuries which have swelled into general necessities, have almost all taken their source from the simple fountain of reason.

When the custom of making square gardens enclosed with walls was thus established, to the exclusion of nature and prospect, pomp and solitude combined to call for something that might enrich and enliven the insipid and unanimated partition. Fountains, first invented for use, which grandeur loves to disguise and throw out of the question, received embellishments from costly marbles, and at last to contradict utility, tossed their waste of waters into air in spouting columns. Art, in the hands of rude man, had at first been made a succedaneum to nature; in the hands of

\* Two of the four rivers enclosing Paradise, the others being Gihon and Hiddekel.

† At Warwick Castle is an ancient suit of arras, in which there is a garden exactly resembling these pictures of Herculaneum.—Walpole's Note.



ostentatious wealth it became the means of opposing nature; and the more it traversed the march of the latter, the more nobility thought its power was demonstrated.

Canals measured by the line were introduced instead of meandering streams, and terraces were hoisted aloft in opposition to the facile slopes that imperceptibly unite the valley to the hill. Balustrades defended these precipitate and dangerous elevations, and flights of steps rejoined them to the subjacent flat from which the terraces had been dug. Vases and sculpture were added to these unnecessary balconies, and statues furnished the lifeless spot with mimic representations of the excluded sons of men. Thus difficulty and expense were the constituent parts of those sumptuous and selfish solitudes; and every improvement that was made was but a step farther from nature. The tricks of waterworks to wet the unwary, not to refresh the panting spectator, and parterres embroidered in patterns like a petticoat, were but the childish endeavours of fashion and novelty to reconcile greatness to what it had surfeited on.

To crown these impotent displays of false taste, the sheers were applied to the lovely wildness of form with which nature had distinguished each various species of tree and shrub.

The venerable Oak, the romantic Beech, the useful Elm, even the aspiring circuit of the Lime, the regular round of the Chestnut, and the almost moulded Orange tree, were corrected by such fantastic admirers of symmetry. The compass and square were of more use in plantations than the nurseryman. The measured walk, the quincunx, and the etoile imposed their unsatisfying sameness on every royal and noble garden. Trees were headed and their sides pared away; many French groves seem green chests set upon poles. Seats of marble, arbours and summer-houses terminated every vista, and symmetry, even where the space was too large to permit its being remarked at one view, was so essential, that, as Pope observed:—

"... Each alley has a brother,  
And half the garden just reflects the other."

Knots of flowers were more defensibly subjected to the same regularity. Leisure, as Milton expressed it,

"In trim gardens took his pleasure."

In the garden of Marshal de Biron at Paris, consisting of fourteen acres every walk is buttoned on each side by lines of flower-pots which succeed in their seasons. When I saw it there were nine thousand pots of Asters, or *La Reine Marguerite*.

We do not precisely know what our ancestors meant by a bower, it was probably an arbour; sometimes it meant the whole frittered enclosure, and in one instance it certainly included a labyrinth. Rosamund's bower was indisputably of that kind, though whether composed of walls or hedges we cannot determine. A square and a round labyrinth were so capital ingredients of a garden formerly that in Du Cerceau's architecture, who lived in the time of Charles IX. and Henry III., there is scarce a ground plot without one of each. The enchantment of antique appellations have consecrated a pleasing idea of a royal residence, of which we now regret the extinction. Haverling in the Bower, the jointure of many dowager queens, conveys to us the notion of a romantic scene.

#### NOTES ON SOWING EARLY PEAS.

SOME recommend sowing Peas in November, and many are successful with them, but I cannot understand why sowing in succession should not go on in December, January, February, and onwards. The soil and atmosphere are not much warmer in November than in the months named, and the seed germinates as freely, and the plants grow as quickly, in January as they do in November. For this reason I am not very favourable to November-sown Peas. They are often ready for use earlier than any which are sown in March or thereabouts, but they are no earlier than January-sown ones, and I am as much in favour of sowing now as in November. The plants from seed put in now will be quite as high by March as any of them, and while November-sown Peas often come to a standstill in January or February, those sown later generally growing slowly.

Where there was seed sown in November I would recommend several rows more to be sown now, and where sowing was omitted before, they may still be put in with the full understanding that no time has been lost. Only the round-seeded varieties, such as *William I.* and *Ringleader*, must be sown thus early. The wrinkles will not bear the cold damp soil, and should never be sown until March at least. If a good row of *Ringleader* is sown the first or second week in January, and the same early in February, the young crops in March and onwards will be as satisfactory as anyone can desire. Rich, rather light soil, suits them best now, and a sunny position is very desirable. Many devote a great deal of time with much space and heat to raising early Peas under glass in the spring months, and so long as they are kept under glass they go on well, but when planted out in the open soil they are almost sure to receive a check, and this is sometimes so severe, that by May the under-glass-raised Peas are the worst in the garden. Altogether, in my opinion, this system does not pay, and it ought to be abandoned in favour of early sowing in the open air. We have over and over again tried to do great things with these forced Peas, but I cannot remember a single instance where they were really first-class, especially in quantity, and every year we feel more and more convinced that to give the best attention to those sown early in the open is the best way of securing abundance of early pods and profitable crops.—A KITCHEN GARDENER.

#### SESBANIA GRANDIFLORA.

UNDER the genus *Sesbania*, which is included in the great family Leguminosæ near *Swainsonia* and *Clianthus*, are grouped ten or a dozen species that are little known in gardens, though one of them, *S. ægyptiaca*

has been in cultivation for 200 years. They are mostly yellow-flowered shrubs or annuals, with long pinnate leaves, and have a rather graceful, ornamental appearance. Much the finest of all, however, is *Sesbania grandiflora*, which is represented in fig. 7, kindly lent us by Messrs. Cheal & Sons, Lowfield Nurseries, Crawley. This has flowers considerably larger than any other species, and being pure white they are very handsome. It is one of the four *Sesbanias* found in Australia, but differs so much in the size of the flowers and in the proportionately narrower petals that some have assigned it separate generic rank under the name of *Agati*. In the "*Flora Australiensis*," however, Mr. G. Bentham states that it only differs in these characters, and that in all other respects it is identical with the *Sesbanias*, amongst which he places it. In a note appended to the description given in the work named, a red variety is mentioned as follows—"The red-flowered variety, *S. coccinea*, or *Agati coccinea*, is not amongst

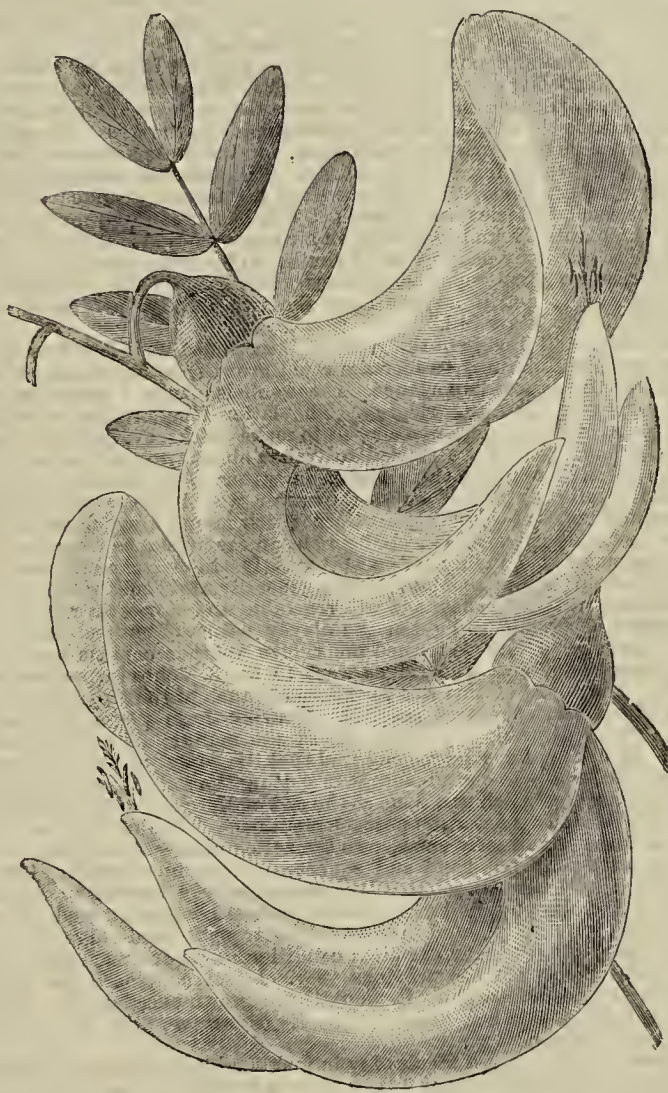


Fig. 7.—*Sesbania grandiflora*.

the Australian species I have seen. Both varieties are frequent in India but perhaps only about villages and other places where they have been planted; they both appear to be really indigenous in the Archipelago." It is also interesting, as noted by Mr. Bentham, that "of the four Australian species three are the commonest Asiatic ones, two of them extending also over tropical Africa," and only one, *S. simpliciuscula*, is confined to Australia.

*S. grandiflora* is a native of the western part of the great southern continent, and in consequence succeeds under cultivation in a greenhouse temperature. The soil should be moderately light, an admixture of leaf soil or peat with turfy loam and sand being suitable.

#### GLADIOLUS BRECHLEYENSIS.

THERE are few gardens where this useful old favourite is not grown often in bedding arrangements, but more generally in the mixed border.

Another way in which I find it useful is as a pot plant, and I have often wondered why it is so little grown as such, especially for use in "groups for effect" at summer exhibitions, where its brightly coloured spikes have a telling effect associated with Palms, Ferns, Crotons, Caladiums, and other ornamental-foliage as well as flowering plants.

The culture is not difficult, but the time of potting must be guided by



the time they are required to flower, the average length from each period being about sixteen weeks. I usually pot strong corms singly into 32-sized pots, and these mostly throw two spikes. After the potting is completed they are placed in the greenhouse, and little water is required until they are starting freely, when they are gradually hardened and placed out of doors in a position sheltered from strong winds. I do not plunge them, but they are well attended to with water, and when roots are plentiful I give liquid manure moderately at first, increasing the strength as the flower spikes advance, which are also neatly staked. As the flowers show colour the plants are taken under glass, and grown in this way I find them much appreciated for decorating the drawing room and other places in the mansion.—J. COPSON *Down Ampney*.

### TREES AND SHRUBS FOR THE SEASIDE—ELDERS.

At the annual general meeting of the English Arboricultural Society, on Saturday, 28th ult., in the Farmers' Club Room, Newcastle, Cadwallader J. Bates, Esq., of Heddon, in the chair, Mr. B. Cowan, South Shields, read the following paper, entitled "Trees and Shrubs Suitable for the Seaside, and where Alkali and other Gases are Prevalent."

When I was first appointed to my present position I felt somewhat the difficulty in knowing what to do for the best. The position was one of the most exposed, situated about 80 feet above the sea level, and one portion sloping towards the sea, the other portion sloping to the west. So when an east wind, or rather north-east wind came, and the trees beginning to burst forth in leaf, we suffered tremendously. Still, strange to say, we prefer the east winds to the west, as then we are within easy distance of two or three chemical factories which we get full benefit. I purpose speaking first of the plants I found to do best on a rugged eminence same as ours, of which there are many other situated similar on the north-east coast. "The part referring to alkali and other noxious gases I shall leave to the last and treat separately, and if anyone have the two evils to contend against, certainly his hands are full."

**Soil.**—The soil first is of the greatest importance, as it is necessary the soil be good, well drained to increase rapid growth, so as to cause shelter which is of the utmost importance. If the soil is clayey I would strongly recommend trenching and ridging. The latter I believe to be of great importance. Our soil here was clay fit to make bricks, every spadeful of it. In the autumn of 1880 we started to trench about two spades deep. The men frequently had to dip their spades in water to get the clay off. The bottom was slightly stirred so as the water would escape more readily. The manure we used was solely the Corporation manure, which we received free of cost, and delivered as well, being at an easy distance from the town. This was put 4 or 6 inches at the bottom. It will be scarcely needful to detail what this manure contains. It is generally night soil, with a preponderating quantity of ashes, and all vegetable and domestic refuse. Our object was, if possible, to lighten the clayey nature of our soil, and render it more porous. When we formed the ridges another copious application of manure was given. The ridges were 15 to 18 inches in perpendicular height. The object of this was to expose as much of the clayey soil to the action of the atmosphere as possible. Between these ridges was put sea sand. We went to this slight expense as the manure did not cost us anything. It will perhaps be remembered that the winter of 1880-81 was very severe. This acted to our advantage in getting the soil into a friable condition for planting, which was done at the end of March, the proper time for cold ungenial soils. After the process mentioned I could take the clayey soil that had been directly exposed to the action of the atmosphere by the ridging method in my hand and squeeze it into fine powder, like any ordinary soil. I am a thorough advocate that clayey farming or gardening can be made to pay by similar methods, such as I have mentioned. Part of the borders were not planted this year. We trenched and ridged them the second year; these were in excellent condition, as we arranged to make the ridges between those of the previous year. I feel convinced the ground, when these trees were put on it, would have grown excellent Strawberries or similar plants that like rich ground. Each year we still give a liberal dressing of the same manure.

**Planting.**—My great difficulty lay in making a judicious selection, as not a vestige of any kind of plant was to be seen except here and there a straggling plant of the common Elder, *Sambucus communis*. So as not to cause too much expense, I thought I would first make only a small selection. Where the ground is on a level with the sea it is not so bad as when the ground you wish to plant is on an eminence, considerably above the sea level. Golden Elders and their varieties are good; amongst Poplars Ontario is the best, and the Black Italian succumbing much more easily than the Ontario. Sea Buckthorn and *Ligustrum ovalifolium* will be sufficient to start with. *Ribes sanguinea* and Lilacs we planted here, but they nearly died to the ground line. They have, since our trees have grown, done much better, and I have no fear as our trees grow they will increase the value of other flowering shrubs. I cannot say too much in praise of the Golden Elder. I am often surprised it is not grown in gentlemen's gardens a good deal more, the foliage being of such a delicate golden colour, and associates well with Coniferæ or ornamental shrubs. I have never seen it do better anywhere than with us, it seems to like strong rich soil and fully exposed to the direct rays of the sun. Among the many varieties we have here none grows so readily and rapidly as the Golden one. Last year we had a large oblong bed of Dahlias and *Chrysanthemum inodorum flore plenum* edged with it, which was effective and much admired. We also had a ribbon border 100 yards long; the back row was Golden Elders, second row *Vesuvius Pelargoniums*, and third edged with blue Lobelias. Next year we will add *Dactylis*, so that the white may contrast with the yellow. The Golden Elders are plants one year old. We find no difficulty in keeping them low enough by an occasional pinch during summer. We have 10,000 plants of Golden Elders, and cartloads of cuttings. We planted here in our borders, in the background the common Elder thickly, 2 feet apart, then, in the front, rows of Golden Elder, *Ligustrum ovalifolium*, and one common Elder alternately, and, occasionally, here and there, a plant of the Sea Buckthorn, which had thus a striking and beautiful appearance blended with the Golden Elders and Privet. The

Buckthorn is slow of growth, but the colour is so pretty, and its Fern-like appearance renders it at once an attractive plant for grouping. Amongst these were placed at intervals plants of Poplar Ontario; as the Elders have grown and become thick the Poplars have got well away. The Elder commences growth so early that if they are planted thickly towards the sea, they would in my opinion act as a shelter for most flowering trees and shrubs.

Mr. Clark, who was gardener for thirty years at Whitley Park, has made his place quite a wonder. He never could grow anything until he got shelter, and this was effected by erecting wooden trellises on the tops of the walls. Previous to that the trees were broken at the tops quite level with the wall-top. This is also apparent in other portions of the coast. Farther north towards Cresswell, Scotch Fir plantations are just nipped at the angle; the plantation inclines towards the sea. Mr. Clark found after getting belts of Elders up the trellis at the wall tops, Sycamores, Elms, Hollies, *Pinus austriaca*, *Cotoneaster microphylla* and *Simonsii*, the Tamarisk, *Aucuba japonica*, and the *Euonymus*, the latter doing excellently. Rhododendrons, Hollies, and other deciduous and evergreen shrubs have done well. In some parts of the village where shelter is afforded Horse Chestnuts have done well. It is generally the cold blasts with a north-east wind prevailing that do the harm. Willows have not succeeded very well with me; the best, I think, is *Salix rubra*. If planting again in so exposed a place as Westoe Cemetery, I should prefer to keep back the Willows till the Elders were up a little, which would be in the course of two or three years.

**Pruning.**—This forms an important part of the winter's work. In each year we pruned down the young Elders two or three eyes, as the strength of the shoot will allow. This causes them to spring very thick. In one avenue we had running east and west, 300 yards long, it is now scarcely possible for the sun to penetrate during summer, forming a cool and pleasant promenade for the visitors. We also add copious quantities of manure dug over early, so as the benefit of the winter may not be lost in rendering the soil more friable. The shoots that many of the Elders here made last year have been, some of them, 10 feet long, and have not been planted five years till spring next, and in the summer the avenue is from 12 to 15 feet high.

**Propagating.**—We annually propagate great quantities of the Golden Elders. We find them grow more readily than even the common Elder. In pruning, the cuttings are taken and heeled in and made on wet days. We generally cut them in lengths of 6 or 8 inches, reserving two eyes to them; but even this is not necessary, as they will grow like Vines from one eye. The end of the shoots, if not sufficiently ripe, are generally cut off; any time between November and March we put them in as it may suit our convenience. Our forefathers attributed many medicinal qualities to the Elder as well as the excellent wine that is made from the berries, which is supposed to contain a narcotic. Boerhaave, the great physician, is said to have rendered homage to the Elder for the above qualities, and never to have passed an Elder without taking his hat off. The leaves are narcotic, purgative, and acrid; the flowers act in decoction as a diaphoretic and are used to flavour vinegar, while in some of the French provinces the peasants strew the leaves among casks of Apples to give them an agreeable flavour, while others aver the berries prove poisonous to poultry, especially to turkeys. Elder flower water is also used for flavouring confectionery of various kinds. The following are among the best varieties: *Sambucus aurea*, gold-leaved; *Sambucus argentea*, silver-leaved; *Sambucus laciniata*, Parsley-leaved. The latter looks splendid with the Golden one. *Sambucus fastigiata* is pyramidal in form and looks splendid by itself. If this variety was only golden it would be one of the most attractive plants we have; it grows the same as an Irish Yew. *Sambucus canadensis*, the white-berried; *Sambucus rotundifolia* is striking in its characteristics; pubescens and racemosa are varieties also well worth growing. The scarlet-fruited is a very fine variety, but does not do over-well here, as the Elder scarcely ever fruits with us, and is only inferior when it does so. We have a variety which becomes very pretty in the autumn. The foliage assumes between a metallic and crimson shade, the wood becoming the same way; we are propagating all we can of this variety. Elders are really the predominant feature for the seaside. The Oval-leaved Privet has never yet kept its leaves during the winter. It was longer in shedding them last year, and as they grow older I hope they will remain in their natural state evergreen, as that is everything in a plant being developed and strong, as they will stand a good deal more bleak winds and even the effect of alkali when they are established. It is, therefore, prudent never to insert plants that are high. Poplars, for instance, should not be more than 3 or 4 feet high at the very most, and then carefully staked, so as to avoid the great amount of rocking they will naturally be exposed to in a north-east wind. I believe if any shrubs stand without shelter the terrific assail of wind it will be the *Aucuba japonica* and *Cotoneaster microphylla*, both of which, in the Marine Park, South Shields, are standing when all other shrubs have failed. Mr. Fred. Goodwin, the Manager of the Cliff Bridge Company, Scarborough, finds that trees one to two years old are best to plant, which have been carefully transplanted in the soils we have mentioned. After they have got up, he has found deciduous and flowering plants of the ordinary kinds do well. Hollies, *Aucubas*, *Escallonia*, Privet, and *Cotoneasters* he shelters from the east wind from November to May. He also finds where his grounds are not immediately facing the sea, but sloping to the west or south, that he can grow every kind of plant much better.

**Alkali and other Injurious Gases.**—The position of our place is almost unique, exposed to all the cruel blasts of our north-east coast, and yet I have generally hoped that in the spring the wind may continue in that cruel quarter, as it has been our only hope of getting our trees into leaf. When the wind changed we were sure to have the chemical fumes, which are most injurious, especially in the initial state of the growths of the trees. Imagine a west wind which ought to cheer the hopes and buoy up the spirits of anyone desirous of seeing his trees come out in full foliage, causing all his hopes to vanish. Such was the case till within this last year or so, when, by some change in the process of the chemical factory it has been considerably mitigated, which has not been slow in showing the rapid growth on that part of our grounds facing to the west; but again, just lately, there is started a large brick kiln, within 50 yards of our main avenue, which no later than September destroyed one side of the avenue. The kiln is on the south side of the avenue. The wall is about 7 feet high. On the north side all was killed nearly to the ground line, especially *Ribes* and Lilacs, which



suffered much more than the Elders, the Golden one standing really the best. In this case we were given damages without any litigation whatever. When you have to apply to chemical companies for damages litigation is troublesome to whoever is in charge, and causes much thought and care, as chemical companies generally know how to look after their interests. What I have generally done here is to use litmus paper. Take the wind once or twice a day, you can generally tell by your nose if alkali sulphuric acid is present in the air. At the same time when the wind is blowing on your place see that smoke is issuing from the chimneys, put out your litmus paper. If you use the red and it turns blue of course alkali is present. If the blue turns red, then it is sure presence of sulphureous acid, which kinds are both injurious to vegetable life. Do not leave the paper out too long, as there is always carbon in the air, which would naturally turn the red paper blue. We are situated about three-quarters of a mile from the factory which did us the most harm. The distance that alkali will do harm depends considerably on the height of the chimney. The higher it is the further the alkali travels before it spreads and does harm. A certain well-known chemical company, close to their factory, bought all the ground and made it into gardens, and when any of the adjoining farmers complained they brought them to see how their gardens were flourishing close to their factories. Of course, the height of their chimneys were such as to carry the gases away some distance, but workmen have got a habit lately of letting the gas out of the chambers at night for their own ease and comfort. This often causes the most unpleasant results to vegetation. I have found plants growing near the ground line, but not nearly so much affected. Plants, after a dose of it, look as if they were burned, and in the early stages of growth is worse, and are not apt to get over it for that year. There is also another strong fact. Plants and trees that have been long established will stand it much better than those of two or three years old, which have not the strong hold of the ground, so that when damaged to the ground line, there is one fact which goes far to prove what I have said as to the length or distance chemical fumes will be injurious is that we have on the south avenue I mentioned, where the walk is 9 feet, the trees on one side are killed, that is the nearest one, and the other side they were doing remarkably well. The same kinds of deciduous trees that I have mentioned do to plant where alkali abounds, but Elders are the best. In fact a good plan would be to insert Elder cuttings of sorts 3 or 4 feet thick in the direction the alkali comes, so as to break the effect of it. Nothing does so well as the Elder. It will thrive if the soil is well prepared, as has been described, so as to cause a quick growth, and even where alkali is strong a pleasing effect may be made of the few kinds of trees I have briefly mentioned, providing they are carefully looked after. In many open spaces we plant Elders to relieve the monotony; these we can either train as pyramids or pyriform as we may wish. We generally place the Golden and common alternately, which has a most pleasing effect.

#### CŒLOGYNE CRISTATA.

THIS Orchid is remarkable for its easy culture, freedom of flowering, and endurance of a cool dry atmosphere when in flower, being indeed one that may be removed to the drawing-room or boudoir without fear of injury, and forming a most attractive plant for a period extending over three weeks. It produces drooping racemes of pure white flowers 3 or 4 inches in diameter, with a large blotch of rich yellow in the middle, the veins having a golden crest-like fringe, and being withal fragrant it is in every respect desirable.

It may be grown in pots, in baskets, and on blocks. Plants in small pots or saucers (perforated), and baskets, the latter when neatly mossed being suitable for the table. The pots or baskets should be well drained; half the depth may be occupied with crocks, and the material may consist of equal parts live sphagnum, rough pieces of peat, and charcoal, with a sprinkling of sand, raised in a moderately high cone in the centre, and well pressed down. The pseudo-bulbs may be placed about their own diameter apart, and pegged to the surface, using galvanised pegs, which are quickly made of No. 14 gauge wire. The pseudo-bulbs should not be buried, their base merely resting on the surface of the material. A little live sphagnum may be placed between them, which gives a neat finish. The time to repot or resurface is just after the flowering is over, or, as a rule, the early part of February. In resurfacing the old sphagnum should be picked out, being careful not to damage the bud at the base of the pseudo-bulbs, and supply fresh lumpy peat and live sphagnum.

I prefer to grow this plant on blocks of wood. The size used is 18 inches long and about 9 inches diameter, taking off about one-third longitudinally, so as to form a flat side for suspending against a wall or the end of a house. If the blocks can be suspended clear there is no reason why they should not be round and covered with the pseudo-bulbs, so as to allow little if any more than their own diameter between them. The blocks are of Elm stripped of the bark. I cover them with a little rough peat, then introduce the Cœlogyne along with the sphagnum, and secure with galvanised nails and copper or galvanised wire. They are suspended anywhere in the stove where there is room and light. The effect of these blocks when the Cœlogyne are in bloom is charming. The blocks are easily kept moist, as the water needs only to be poured on the top of the blocks, and there is no fear of water lodging in the young shoots and causing their decay. Water will, of course, find its way to the bottom of the block, so that the upper part will be driest, and the watering must be regulated in quantity so as to saturate the blocks as low down only as required.

During growth the plants must not be allowed to become dry, and copious supplies of water are necessary, keeping them constantly wet from the time the plants begin to grow in spring, and I give a light dash from the syringe twice a day after the pseudo-bulbs begin forming. From February to October they require plenty of water, but when they are of good size water only need be given to keep them from shrivelling. Whilst growing a stove temperature is necessary, or that of the Cattle

house, but in winter they may be kept cool or in a temperature of 50° to 55°, though they will do well enough in a stove temperature, only do not keep them very moist, or premature growth may commence.

Cœlogyne cristata does well in an ordinary stove, and excellently in an intermediate house; notwithstanding, it is all the better if encouraged when making growth, as a dry atmosphere causes the leaves to become stunted, and as these are so are the pseudo-bulbs and flowers.

There are at least two varieties—viz., *C. cristata alba* and *C. cristata Lemoniana*, the former being pure white and the other citron yellow.—G.

#### NATIONAL CHRYSANTHEMUM SOCIETY.

JANUARY 13TH.

THE Exhibition of late Chrysanthemums provided by this Society at the Westminster Aquarium on Tuesday last proved a welcome surprise to most visitors, for there was a general opinion that the attempt would prove an unsuccessful one. Happily the result indicated in a more convincing manner that it is possible to obtain an exhibition of much beauty at a time which has hitherto been the duldest in the whole year from a horticultural point of view. The Society deserves great praise for their efforts to extend the season of the Chrysanthemum, and the most pleasing success of their first January display will give them encouragement to organise a show on a still more extensive scale another season.

The schedule provided six classes, in which first and second prizes were offered, varying from £2 to 10s., and in several cases third prizes were also awarded. The incurred blooms were the least satisfactory, neither of the classes for twelve or six blooms being well represented, and it is evident that the Japanese varieties must be principally depended upon for late shows of this character. A second prize was awarded to Mr. Bettisworth, gardener to R. Ewing, Esq., Burton Grange, Cheshunt, for twelve incurred blooms, eight being *Miss Marechaux* and four *Princess Teck*. A similar prize was awarded to Mr. J. Walker, Thame, Oxon, for small blooms of *White Venus*, *Duchess of Teck*, and *Jardin des Plantes* in the class for six incurred.

With twelve Japanese R. Falconer Jameson, Esq., Hesse, Hull, secured first honours, showing fine full blooms of *Triomphe de la rue des Chalets*, *Mad. Augustine Gautheraut*, *Sceptre Toulousain*, and *Bend Or*, all bright fresh blooms. Mons. Comte, Japonais, and *Boule d'Or*, in duplicate, were also noticeable for their good quality. Mr. H. Lister, gardener to Lord Brooke, Easton Lodge, Dunmow, was a close second with very bright fresh blooms of *Triomphe de la rue des Chalets*, *Grandiflora*, *Comtesse de Beauregarde*, *Thunberg*, *Meg Merrilees*, *Fanny Boucharlat*, and *Mad. C. Andiguier*. Mr. Bettisworth was placed third with *Ceres* and *Meg Merrilees*, especially fine, and an extra prize was awarded to Mr. Sullivan, gardener to D. B. Chapman, Esq., Downshire House, Roehampton, for a number of varieties, but rather small blooms. The last-named exhibitor was, however, first with six Japanese, showing *Mad. A. Tezier*, *Ceres*, and a *Yellow sport* from *Khediye*, Mr. J. Walter following with small examples of *Peter the Great*, *Elaine*, and *Ethel*.

A class was devoted to a collection of twelve blooms of any Chrysanthemum distinct varieties, and this brought a pretty display. Mr. Falconer Jameson was again the most successful, taking the first place with good examples of *Golden Christine*, *Souvenir de l'Ardennes*, *Marquis of Lorne*, *Triomphe de la rue des Chalets*, *Roseum superbum*, *Jeanne d'Arc*, Mons. Comte, *Mad. Berthie Pigmy*, *Pink Christine*, and *Mad. Cabrol*. Mr. G. Bolas, gardener to N. Chandos Pole Gill, Esq., Hopton Hall, Wirsborough, was second, the best blooms being Mons. C. Herbert and *Source d'Or*. Mr. Bettisworth was third with *Fanny Boucharlat* in good condition, and the bright yellow large *Anemone Sunflower* was equally fine. An extra prize was awarded to Mr. Walker for small blooms similar to those he had in other classes.

The most effective portion of the display was that in the class for a collection not restricted as to number of blooms or varieties, in which Mr. Joseph Lowe, Uxbridge, won first honours with six boxes, containing twelve dozen blooms. There were two boxes of *Princess Teck*, and the same number of *Grandiflora*, one box of a beautiful bronze and bright red Japanese named *Lowe's Late Bronze*, and a box of mixed varieties, such as *Fair Maid of Guernsey*, *L'Africaine*, *Fulton*, and *Lady Marguerite*. Mr. R. Owen, Maidenhead, was a very close second with fewer blooms, but some were of excellent size and substance, and all were as fresh as possible. The principal sorts represented were *Boule de Neige*, *Belle Paule*, *Ethel*, *Sarnia*, *Mad. Deville*, *Etirole Fleuri*, *Dr. Macary*, *Colibri*, *Fabian de Mediana*, *L'Incomparable*, *Mrs. Mahood*, *Nuit d'Automne*, *Golden Queen*, *M. Delaux*, and *Fanny Boucharlat*. Mr. Bettisworth was awarded an extra prize.

The non-competing exhibits added to the extent and interest of the Show, certificates of merit being awarded to the following:—To Mr. F. Taylor, gardener to Sir John Lubbock, Bart., M.P., High Elms, Beckenham, for a bright and pretty collection; to Mr. E. Beckett, Alderney Park, Elstree, for a collection of handsome blooms representing some of the best varieties; and to Messrs. H. Cannell & Sons, Swanley, for a group of *Primulas* and small *Oranges* in pots, well fruited and most ornamental. Mr. G. Sinclair, East Linton Gardens, Peebleshire, N.B., sent a wreath of *Elaine* which was highly commended, as were also three fine blooms of *Boule d'Or* from Mr. Horrocks, Withington, Manchester. Messrs. W. & G. Drover, Fareham, Hants, showed blooms of a Japanese variety named *Syrin a*, which the Committee would like to see again in the autumn. The florets were bluish-tinted, fluted, and incurved, forming a good solid bloom.

There was a good attendance of visitors during the afternoon and evening, and considerable satisfaction was expressed at the Society's first venture in a new direction.

**LARGE SPRING ONIONS.**—For exhibition in July and August there is always a demand for large spring-sown Onions. Here is a good way of securing them. Get some very tough turf, soak it in liquid manure, dry it, then cut it into pieces 2 inches square, make a little hole in the centre of each with the forefinger, drop two or three seeds into each hole, and then place the turves in a layer close together in a shallow box. Shake a very little soil over the turf to fill the holes, and then place the boxes near the glass in a gentle heat. The seed will soon germinate, and a fine



plant with its roots convenient for transplanting will be the result by the middle of March. There is no better way than this of raising a few scores of early plants, and the plan applies capital to Leeks and Celery. The transplanting period is the time which tries all early under-glass-reared vegetables, and the square-turf system preserves the roots well.—M. W.



#### HARDY FRUIT GARDEN.

Do not waste space in the orchard or fruit garden upon inferior sorts of fruit. If you have old trees, ascertain if they are of really good sorts; if not, either grub them up or head back and graft next March. Lists of the best sorts of hardy fruits were given in time for selections for autumn planting. Since then we have repeatedly seen considerable quantities of inferior fruit in the market (especially of Apples) that sold for a mere trifle in comparison to what is paid for choice selected imported fruit. We have also been to Covent Garden and witnessed the opening of barrels of American Apples, and the keen competition of eager purchasers who evidently knew that there was "money" in the venture. The sight was instructive, and we could not but wonder how the fruit-growers of this country—at any rate in the south—could allow Brother Jonathan to come across the Atlantic and forestall them in the market. We again, therefore, before the planting season is over, call attention to some good sorts of fruit which are really profitable in the full sense of the word both for home consumption and for market. We turn first to the best sorts of Kent fruit grown, as enumerated by Mr. George Bunyard, who is a member of the Fruit Committee of the Royal Horticultural Society, and Mr. Charles Whitehead, whose work, "Hints on Vegetable and Fruit Farming," is so well known. Both these gentlemen reside in the centre of the Kentish fruit district, and their selections of sorts are worthy of general attention. Mr. Bunyard, in his "Fruit Farming for Profit," classifies Apples, first giving early dessert sorts to sell direct from the tree, and these are Red Juneating, Mr. Gladstone, Devonshire Quarrenden, Duchess of Oldenburg, Kerry Pippin, Summer Golden Pippin or Ingestrie, Worcester Pearmain, Prolific or Colonel Vaughan, Sugar-loaf Pippin, and Red Astrachan. Of culinary Apples, also to be sold direct from the tree, he gives Early Julien, Keswick Codlin, Manx Codlin, Cellini Pippin, Lord Suffield, Old Hawthornden, New Hawthornden, Cox's Pomona, Loddington Seedling, Grenadier, Warner's King, Stirling Castle, Ecklinville Seedling. Dessert Apples for keeping: King of Pippins, Cox's Orange Pippin, Blenheim Pippin, Gascoyne's Scarlet Seedling, Wykon Pippin, Golden Knob, Sturmer Pippin, Court Pendu Plat; and of keeping culinary Apples: Blenheim Pippin, Small's Admirable, Golden Noble, Lord Derby, Queen Caroline, Gloria Mundi, Winter Queening, Dumelow's Seedling, Beauty of Kent, Northern Greening, and Prince Albert.

In addition to most of the foregoing, Mr. Whitehead recommends Ecklinville Seedling, Lady Henniker, Gooseberry Pippin, Early Strawberry, Summer Nonpareil, Ribston Pippin, Margil, American Newtown Pippin, Court of Wick Pippin, Claygate Pearmain, and Mannington's Pearmain. If we were planting extensively for market we should not care to plant many sorts, but should rather plant a few sorts by the dozen or hundred that were certain to afford an early, regular, and abundant supply of fruit. Of Apples we would have whole plantations of such sure croppers as Warner's King, Keswick Codlin, Duchess of Oldenburg, Small's Admirable, Golden Noble, and Cellini Pippin, only planting Cellini extensively in deep rich soil, as it cankers badly in thin soils. Then, too, what a profitable investment would an acre or two of Margil be if dwarf bushes of it on the Paradise stock were planted 10 feet apart. For late-keeping fruit Court Pendu Plat, Dumelow's Seedling, and Gooseberry should have preference. Court Pendu Plat starts into growth so late in spring that its blossom escapes damage from late frost. The fruit of Gooseberry keeps good longer than any other Apple, which property gives it an especial value.

Of other fruit profitable enough to grow extensively take Rivers' Early Prolific Plum, Cluster Damson, Prince of Wales Plum, Beurré Clairgeau and Williams' Bon Chrétien Pears, Prince of Wales Raspberry, Warrington Gooseberry, Black Naples Currant, Raby Castle Red Currant. The six sorts of Gooseberries highly recommended by Mr. Bunyard are Whitesmith, Early Sulphur, Warrington, Rifleman, Crown Bob, and Lancashire Lad. The fact of this selection having been made from 150 sorts adds to its value.

#### FRUIT FORCING.

**PEACHES AND NECTARINES.**—*Earliest House.*—The trees started at the commencement of December will now be in flower, and artificial impregnation must have daily attention. The camel-hair brush should be passed over flowers that have ripe pollen about noon each day, a steady circulation of air being secured by opening the ventilators in front of the pipes, which should be sufficiently heated to raise the temperature to 65° at midday, and 5° to 10° more may be allowed from sun heat. Avoid syringing the trees whilst they are in blossom, but maintain a genial condition of the atmosphere by damping the walls, paths, borders and stems

of the trees in the morning and afternoon of fine days with tepid water. The night temperature should be kept at from 50° to 55° when the weather is mild, but on cold nights allow the temperature to fall 5°. Look well to the outside borders, and guard against sudden chills by keeping the roots covered with some dry non-conducting material. A layer of Oak leaves covered with shutters a foot thick answers well.

*Second House.*—The trees that are to afford ripe fruit early in June have been started, and their buds are swelling fast. Syringe them twice a day, always early enough to allow the trees to become fairly dry before night. Keep the temperature 40° to 45° at night, and 50° in the day by artificial means, advancing 10° to 15° with sun heat. Ventilate from 55°. See that the borders are in a proper condition as to moisture, and if dry afford a thorough supply of water. When the blossoms show colour, and the anthers are clear of the petals, discontinue syringing, but secure a genial condition of the atmosphere by damping all other available surfaces two or three times a day according to the weather.

*Succession Houses.*—Keep these cool and airy, and if the blossoms are likely to become too forward a little shading will retard their expansion—a double thickness of herring or pilchard nets drawn over the roof breaking the force of the sun considerably. The buds are in most cases very forward, and as the sap is more or less active and evaporation constantly taking place, the condition of the border being ascertained, a good soaking should be given if needed so as to insure thorough moisture through to the drainage. It is well not to allow the blossom buds to be subjected to very severe frost after they begin swelling, therefore turn on the heat in very severe weather so as to prevent the temperature becoming very low.

*Late Houses.*—Finish all pruning and cleaning at once, for though Peaches may be pruned from the fall of the leaf up to the blossoming period, many advantages attend the performance of the work before the buds begin to swell. One of the most important is the fact that the young wood may be washed twice or thrice with a much stronger insecticide without fear of injury than when the sap is moving. Ventilate fully, except when frost prevails, and see that the trees have sufficient water at the roots.

*Fumigation.*—A very important operation in the management of forced Peaches is fumigation to destroy aphides, but more particularly through the early stages. We therefore advise that it be made a standing rule to fumigate every house thoroughly just before the blossoms open, and to avoid the introduction of all plants that are not free from aphides. In fumigating after the blossom is expanded great risk is incurred of injuring it, and the foliage also later on is very easily injured by tobacco smoke, consequently it needs to be done at all times with care and judgment, or irreparable injury may be inflicted. It is always safer to fumigate on two or three consecutive evenings moderately than risk fatal results. The foliage should in all cases be dry and the tobacco paper or rag kept from flaring.

**STRAWBERRIES IN POTS.**—Those introduced early in December are now starting; the flower scapes are pushing simultaneously with the young leaves, which is an indication that the crowns have been well ripened, and gives hope of a good crop, inasmuch as there is no loss of vigour in the formation of leaves preceding the development of the flower spike. Advantage should be taken of every favourable opportunity to ventilate, as with growth progressing ventilation becomes a matter of the greatest importance to keep the plants sturdy and insure a strong bloom. The plants should be closely scrutinised for aphides before flowering commences, and if there be any trace of the pest take prompt measures to eradicate it before the flowers expand. Damp the walls and paths in the morning and early in the afternoon, with a little ventilation at the early syringing, the temperature being kept at from 50° to 55° artificially, with an advance of 10° to 15° from sun heat. On bright days the plants as well as the paths should be syringed, as absorption and evaporation will take place much more rapidly, and the atmosphere will become sufficiently dry before dark. Close early so as to raise the temperature to 70° or 75° from sun heat. Allow the temperature to fall to 50° at night, but 5° higher if the weather be mild. Examine the plants daily, giving water if necessary.

#### PLANT HOUSES.

*Trellises.*—Where new or larger trellises are required upon which to train Allamandas, Clerodendrons, and other plants of similar growth, they should be prepared at once, as there is more time now for such operations than will be the case presently. It is a mistake to leave the making of trellises until the plants are ready for potting. Trellises should be thoroughly cleaned and painted annually. Plants are frequently attacked by insects early in the season through the employment of dirty trellises.

*Stakes.*—As opportunity offers, stakes that are not in use should be sorted and tied in bundles according to their size. When deal stakes have been employed for one season they are generally decayed at the base. These may be shortened and pointed ready for use; they will do for plants of dwarf growth as well as new ones. When this has been done it can quickly be estimated how many of the larger sizes are required. These should be made or purchased as early as possible, and painted ready for use. Work of this description can be done in the morning and again in the afternoon at this season of the year. We have found where labour is an object that it is cheaper to buy stakes—that is, all over 2 feet in length, than to make them; these only require painting green to render them neat. All small stakes that we require are made from stout bamboo canes, which are cut into various lengths and then split according to the strength required. These can afterwards be made shapely with but little labour, and are very durable. For Hyacinths, Achimenes, and many other similar



plants these stakes are the most desirable, because they can be made very slender, so that they are scarcely noticeable.

**Labels.**—Good quantities of these in various sizes can be made where required, but they are now so cheap that we have discontinued making them, for we have plenty of other work for all outdoor hands when the weather drives them inside. But where outdoor labour is plentiful and the men are not required for other work during bad weather, they may be profitably employed in this.

**Baskets.**—Where *Nepenthes* and *Orchids* are grown in square baskets made of teak or other wood, new ones may be prepared, for they will soon be wanted. Baskets in which *Ferns*, *Achimenes*, and other plants are to be grown should be thoroughly cleaned and painted. The best and easiest manner of cleaning baskets is to place them for a short time in a copper of boiling water, then paint them thoroughly after they are dry. Wash all pots and pans as they become empty.

**Crocks.**—When employed for the drainage of plants in pots, crocks should be perfectly clean, for this is equally as important as using clean pots. They should be washed and then broken ready for use. After a good heap has been broken they may be passed through different sized sieves, and each size stored by themselves.

**Sphagnum Moss.**—Sort this in readiness for potting. All coarse portions should be reserved for placing over the drainage; reserve the best for *Orchids*. The largest and finest green heads may be selected and placed in pans; these can be kept perfectly fresh in a cool house if watered occasionally. The remainder should have boiling water poured over it to destroy insects.

## THE BEE-KEEPER.

### NOTES ON BEES.

#### THE WEATHER.

ON the day before Christmas the bees were working upon the *Arabis*, with a temperature of 50°, continuing mild up till Tuesday, when there was a heavy fall of snow, at a temperature of 20°, but it gave way to a rapid thaw on the following day. By Thursday the temperature had risen to 50°, and the bees were out in fine style, the day having the appearance of spring. The New Year was ushered in with a similar mildness, but accompanied with wind and rain, bees still seeking an outing. With the frequent airings they have had all danger to abdominal distension may be said to be past for a season. The recent heavy snow has not, however, been favourable to the apiary.

#### HEALTH OF BEES.

All my bees appear healthy, with no perceptible difference in number to what they were at the end of September. There are very few dead bees to be seen, if I except an imported Syrian stock, and I should say of it that it has turned out at least 500 dead bees during December. I have one pure Carniolian located in a deep compound frame hive; but it has not yet shown either a dead bee or a living one at the entrance since October. I examined its floor to-day (the 2nd January), clearing away the debris deposited on the sliding bottom of the ventilating floor, and discovered from their cheerful hum that all was well. This hive has eight frames 17 inches deep by 12½ inches inside measure, and the bees are in the highest state of health, as, indeed, are all similar hives with me.

#### EFFECTS OF CANDY.

Since the memorable successive three bad years about 1860, when candy was used by me for the purpose of keeping the bees alive during summer, I have almost discontinued its use, because I found it wasteful and against the prosperity of the hive when compared with good sugar syrup. One hive I have under my care, during the past month has had nothing but candy for its food. It seems to be surviving on it, and a novice might say doing well, but I observe that unless the bees get an airing frequently they soon get surcharged with water, and with a protracted and severe winter would not exist long. I have therefore come to the conclusion that to feed bees wholly with candy during winter would be simply courting defeat. Novelties may amuse for a time, but will in the end, as of late, compel bee-keepers to return to the old and more rational system of apiculture. When once plans to induce moisture inside hives for breeding purposes are aban-

doned bee-keepers will then find themselves on the way to a better system of bee-keeping.

#### ANSWERING QUERIES.

A great many persons desiring information on apiculture seem to prefer writing me direct. I am willing to answer such letters, but there are other considerations. By answering queries privately it takes away the interest and information from the readers of this Journal. Therefore, in the future, all queries with reply of general interest will be sent to the Editor of this Journal for publication.

#### RECORDING EXPERIENCE.

To make the bee columns of this Journal more instructive, it is desirable that all bee-keeping readers should send their experience in matters of interest, whether it be that of success or failure, stating briefly under what conditions either resulted, together with any supposition the bee-keeper may have as to the cause. By bringing isolated cases together, and examining them collectively, a better knowledge of facts will be arrived at than when single cases only are brought to view.

#### SURPLUS QUEENS.

During the spring months there are always some queenless hives, as well as some bee-keepers having one or more surplus queens which they can well spare, and which would be a great boon to those having queenless hives. I think bee-keepers would feel grateful if the Editor would give a cheap advertisement to those in want of or who had queens to spare (not being traders) up till May. The advertisement need not be more than name and address, with number of queens wanted or for sale.

#### HONEY PRESSER.

These I have no doubt will be in great request if the Heather harvest is a large one, as by it only can Heather honey be taken satisfactorily from the comb. I have a number of letters of inquiry about these pressers, based upon a reply in the *British Bee Journal* for October 15th, 1885. It says "Young's honey presser is like Mr. Thomson's," which is not the case. The honey presser I have explained and recommended differs greatly from Mr. Young's. Therefore I am not responsible for any mishap with these pressers, nor can I explain the working of any other than the Lanarkshire one. —A LANARKSHIRE BEE KEEPER.

#### DRIVING BEES.

THIS most necessary operation has often caused no little trouble to bee-keepers who, in attempting to drive their bees from one hive to another, have signally failed in the attempt. A most amusing account was given of such a failure in the *Cottage Gardener* many years ago, in which is a vivid description of frantic exertion on the part of a certain bee-keeper who failed to accomplish his object, for the bees, notwithstanding a continued drumming for nearly an hour, kept to their old home. The difficulty was, however, another day easily surmounted. There are few bee-keepers who cannot call to mind some such an amusing episode. In order, however, as far as possible to remove any difficulty which may have been experienced, and to assist those who in spring will for the first time undertake the operation, it shall be my endeavour to state in detail as clearly as possible the methods, which are two in number, by which bees are now driven into an empty hive.

In the first place we must fully realise that it is by acting upon their fears only that we have gained the mastery over bees. It is the knowledge of how to work upon these fears which is indeed the key which has unlocked their treasury. If, then, we have a stock in a straw skep which we desire to drive either for forming an artificial swarm or for clearing the combs preparatory to breaking up the stock, the plan of action is the same, except that in the former case two-thirds of the bees with the queen are taken, and in the latter every bee which can be induced to leave the hive.

The best time for driving is the middle of a fine warm sunny day, although any hour in daylight will do almost equally well. Before in any way moving the hive or disturbing the bees a few puffs of smoke must be injected into the hive, and until by their changed hum it is ascertained that the bees are gorged with honey, and so in high good humour, nothing should be done. When, however, the operator is satisfied upon this point, the stock with its floorboard should be moved to some convenient spot a little distance from the apiary, where the



driving can be performed without getting the rest of the stocks in a state of commotion. On the stand from which the hive to be driven has been removed an empty hive must be placed if the bees are working, to retain such of them as, returning from the fields and finding their home gone, might enter other stocks and cause the death of their queens. After the driving is over these few bees may be joined to the rest of the swarm, and so no life need be lost. The stock must then be carefully loosened from its floorboard and very gently turned upside down, and during this movement the combs must be kept endwise, for if moved other than the way they hang the fastenings at the side of the hive may give way and cause the comb to fall.

All is now prepared for the adoption of whichever system of driving it is desired to use, and these are "close driving" and "open driving," the latter of which is now most generally practised, as the bees can be watched, and if the operator is sharp-eyed the queen picked out as they rush into the upper hive. If, however, close driving is preferred, a hive of the size of the upturned stock must be placed upon it, and a cloth tied round the junction to keep in the bees. If, again, open driving is practised, the upper hive touches the lower at one point only, and this point must be the place to which the combs run. The junction must be secured by a skewer passing through both hives at this junction, and by two iron rods 9 inches long with projecting blades at either end at right angles to the rod some 2 inches in length, and these rods, one on each side of the hive, should have one end of each stuck into the upper hive and one end of each into the lower, and the upper hive can thus be so securely fastened in any position which is convenient as to withstand the shaking caused by drumming. The top hive, it has been said, may be placed at any angle to the other, but possibly a right angle is as suitable a one as it is convenient. In drumming the operator must stand with his back to the strongest light at the opposite end of the combs to the junction of the hives. The object is to cause the bees at this junction to run from one hive to another. The procedure in either system is now the same. Everything being thus prepared, a constant ceaseless drumming must be maintained on the bottom hive, and this drumming must not cease and must be as heavy as possible without endangering the safety of the combs. In the course of a few minutes a general movement will be perceived, and in quarter of an hour but very few bees will remain in the stock, and these, if amounting only to a score or so, may well be left, as all attempts to dislodge them are of little avail, so determined are they to cling to their old home. In driving for swarms the drumming will be stopped when a sufficiency of bees are seen in the upper hive. The bees are now out of their hive at the mercy of the bee-keeper, who can use them for any purpose which seems likely to be of advantage to him.

Nothing has, however, been said of the difficulty which has often been experienced in driving certain hives. There are several reasons which may account for the impossibility of getting bees to leave their hive at certain times, for the queen may be old and feeble, unable to climb into the upper hive, or she may get into some snug corner where the vibration has less effect than in other parts of the hive. The drumming may have stopped while a rest was taken, or it may not have been severe enough; or if there are no sticks in the hive to which the combs are attached the combs may have shut together like the leaves of a book and prevented the exodus. Any of these causes may prevent success, which, however, will surely follow a future attempt; but in very cold weather bees often absolutely refuse to leave the comb unless means are taken to persuade them by putting them into a warm room for a few hours and feeding them, when they can easily be driven. Any man can drive who will make the attempt, but in this, as in other things, perseverance is necessary and judgment; and if these two essentials are made use of success is assured.—FELIX.

#### TRADE CATALOGUES RECEIVED.

- Bruant, Poitiers (Vienne) France.—*List of New Plants*.  
 Barr & Son, 12 and 13, King Street, Covent Garden, London.—*Spring Catalogue of Flower and Vegetable Seeds for 1886*.  
 Hooper & Co., Covent Garden, London.—*Spring Catalogue for 1886*.  
 Kelway & Son, Langport, Somerset.—*Manual for 1886*.  
 Stuart & Mein, Kelso, Scotland.—*Amateur's Gardening Guide and Spring Catalogue for 1886*.  
 Dobie & Mason, 66, Deangate, Manchester.—*Catalogue of Seeds for the Garden and Farm*.  
 Charles Turner, Royal Nurseries, Slough.—*Catalogue of Vegetable and Flower Seeds*.  
 James Dickson & Sons, 108, Eastgate Street, Chester.—*Catalogue of Vegetable and Flower Seeds for 1886*.  
 Benjamin Soddy, 243, Walworth Road, London.—*Spring Catalogue of Seeds*.  
 Thomas S. Ware, Hale Farm Nurseries, Tottenham.—*Catalogue of Seeds, Plants, and Specialties*.  
 Lucombe, Pince, & Co., Exeter.—*Catalogue of Vegetable and Flower Seeds for 1886*.  
 Hogg & Wood Coldstream, N.B.—*List of Seeds for 1886*.



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Eucharis Roots Destroyed (J. F. G.).**—The bulbs are attacked by the destructive mite that is not by any means easy to eradicate, still we have seen bulbs quite as much injured as those you have sent that were cleansed and afterwards rooted freely, healthy plants resulting, and now producing flowers. Remove all the injured roots and scaly matter from both the base and neck of the bulbs, then wash them thoroughly in a solution made by dissolving 2 ozs. of softsoap with a lump of soda as large as a nutmeg in a gallon of soft boiling water, stirring in briskly while still hot a small wineglassful of common petroleum, such as is burned in lamps. When this has cooled somewhat, but is still as hot as the hand can be borne in it for a moment or two, dip the bulbs in it and rub the solution into every fissure with a soft brush. This mixture will destroy all the mites that are reached. Place the bulbs in small clean well-drained pots of rather sandy turfy loam, embedding them in, and surrounding with crushed charcoal, plunging the pots in bottom heat if convenient; then if the soil is kept moderately moist, but not distinctly wet, fresh roots will in all probability be emitted. A little soot and bruised charcoal mixed with the turf used will be an advantage, as much as would fill a dessert spoon being sufficient of the former for a 5-inch pot; charcoal may be safely used more freely.

**Pruning Gooseberries (Pershore).**—Whinham's Industry Gooseberry has been illustrated in this Journal, and testimony published of its productiveness. You are not likely to spoil your newly planted trees by rather close pruning, provided you cut to prominent buds on the young wood, or that formed last year (1885), selecting those buds that point in the direction you wish future growths to extend. First thin out the growths if numerous, making cuttings of those removed, and leaving those retained 6 inches asunder. These may be shortened to 3 or 4 inches, the parts removed if long enough being inserted as cuttings. When a choice is afforded we prefer cuttings 15 to 18 inches long, but have inserted them less than a third of that length, or two joints within the soil, and one or two above it, the buds being removed from the portion inserted if suckers were not desired for future cuttings. The cuttings should be inserted firmly in sandy soil. The leading growths of established Gooseberry bushes may be left longer than above indicated, and side growths from the main branches may be shortened to within an inch of the base of the young wood both on newly planted and established trees.

**Acacia platyptera (Clifton).**—The above is the name of the plant of which you have enclosed a spray. It may be slightly pruned after flowering so as to prevent a loose or irregular habit of growth. When the plants start growing afterwards they should have the drainage rectified if needed, some of the old soil being removed, and a top-dressing of fresh added, pressing it down firmly. They grow well in sandy loam with a little peat added. Any that need larger pots must be shifted instead and top-dressed, but large shifts and overpotting should be avoided. For a time they should have a very light position in a greenhouse or pit, and towards the middle of summer may be stood in a sunny position outdoors to ripen their growths, taking care that worms cannot enter the pots, and that the roots are not scorched by the heat of the sun. Propagation is readily effected by inserting cuttings of sturdy growths about 4 inches long just when getting a little firm in sand under a bellglass in moderate heat, keeping them moist and shaded, not heavily, till rooted, then exposing them to light and air gradually till they will endure all that can be afforded of both.

**Planting Shrubs (An Old Subscriber).**—We are willing to help you, but feel at a great disadvantage, inasmuch as your plan is not drawn to scale, and you leave us to guess at the width from the flower beds to the path at A B C and D on the plan. We doubt very much if you have nearly sufficient space for either of the Piceas. As the lawn appears narrow we should have thought that narrow columnar shrubs of the Irish Yew type much more suitable, planting them in pairs, one pair in the angles on each side A, so as to not obstruct the flower bed; the next pair in the angles between the oval-shaped and oblong bed; another pair in corresponding portions beyond, and the next pair at C and D on the plan. If you like to send us a plan of the lawn and flower beds drawn to scale so that we can understand the extent of space, repeating your wish, your letter shall have our best attention; we cannot answer your present letter satisfactorily.

**Hyacinth Roots Decayed (C. S.).**—If the roots are in the deplorable condition you represent we know of no other plan for inducing growth than removing the pernicious soil from them and potting in sandy loam with some crushed charcoal for surrounding the bulbs. When bulbs are plunged outside it is easy to throw off heavy rains by thatched hurdles, boards, or shutters; but we suspect the soil employed has been the chief cause of the evil. It must either have contained something injurious or of such a reten-



tive nature as to have been rendered sour by stagnant water. A sandy porous soil should always be used from which water can drain freely. The bulb farms of Holland are composed mainly of sand, almost a "blowing sand" in hot weather. N.B.—This reply was prepared for insertion last week, and we regret it was accidentally overlooked by the printer, but as you appear to have commenced doing very much what we have suggested we are glad to feel that no serious inconvenience is likely to result by the delay.

**Pears not Ripening (A. L.).**—Many Pears fail to ripen because they are gathered too soon, and then stood in a very light dry place, whereby their juices escape and the fruit becomes dry and remains firm. As you give us no particulars to guide us in forming a judgment in your individual case we are only able to give this general reply. We did not publish the report to which you refer, because it was a distinct and most effective advertisement of the products of a firm who do not advertise in our pages; we do not, however, suppose for a moment that you were animated with other than a worthy motive in sending the report.

**Lapageria Unhealthy (Mitchellean).**—There are two main reasons why these plants are often in an unsatisfactory state in pots:—1, Close soil not sufficiently drained, and hence sour. 2, Pots so densely crowded with roots that the plants do not receive adequate support. Lapagerias usually grow best planted out in a bed at least 18 inches deep, the bottom 6 inches being of drainage, broken clinkers and charcoal being excellent, the remainder springy turfy peat and loam, twice the quantity of the former, with a liberal admixture of charcoal, the whole to be pressed down as firmly as the turfy nature of the compost permits. A bed thus prepared can scarcely be made sour, due provision being made for the free exit of water from the drainage, and when the soil is permeated with roots it is not easy to give too much water; until then water must be given more sparingly, yet the soil should never get anything like dry. If you prefer growing the plant in a pot, prepare the soil similarly. In the event of your plant not having rooted freely, it will be advisable to remove a good part of the old soil, which will be sour, and give fresh as suggested, thinning out and shortening wiry growths to the best buds you can find, syringing the plant twice or thrice a day according to the weather, to prevent excessive evaporation from the leaves, and so assist the emission of fresh healthy roots, which alone can invigorate the plants. We know of Lapagerias that grow luxuriantly and flower profusely on the north side of greenhouses.

**Planting and Pruning Apricot Tree (J. W.).**—We presume your tree is young. If it is well rooted—that is, has a good number of fibrous roots, we should not shorten the branches to any great extent. In planting cut off all jagged roots and bruised portions and plant in a mixture of fresh loam, lime rubbish, and wood ashes, laying the roots out straight, separating them, and packing the soil rather firmly round them, covering about 5 inches deep and spreading littery manure over the surface and for a foot or more beyond the extension of the roots. If the branches are numerous remove some of the weaker entirely, so that the others can be disposed 8 or 9 inches apart, and if there is a foot between them at a distance of 3 feet from the stem all the better. Assuming roots are plentiful, we should only remove the unripe ends of the branches, say a length of 6 inches, more or less according to their condition and with due regard to the symmetry of the tree, cutting from below and starting the undercut above what is to be the terminal bud, not below it, bringing the knife out above, as is frequently done. The lower branches of a tree should as far as possible be in advance—that is, longer than those above them, so that the lower part of the wall may be furnished. There is no difficulty in covering the upper portion. When a branch is disposed to lag behind, it should be trained more or less towards a vertical position, those fully too strong being correspondingly depressed. When luxuriant shoots push from the centre of a tree and threaten to draw the sap from the weaker growths below, the tips may be taken from the strong shoots when 6 inches long, and the secondary growths that will push will quite equal in strength the first growths on the lower branches. Apricots trained thinly and a good balance of growths maintained in summer, the roots encouraged to extend in rather firm and not over-rich soil near the surface, produce short-jointed wood that matures and becomes fruitful in character, and no more shortening of the branches is then required in the winter than may be advisable for forming a well-balanced fruitful tree. Do not secure the branches tightly to the wall on planting, as the soil may settle somewhat and drag the roots downwards if the branches are immovable. The Hemskerk is a variety of the Moorpark, and one of the most useful Apricots you can grow.

**Pruning Fruit Trees (W. A. K.).**—The condition of the roots is an important factor in determining the extent to which the branches of recently planted trees should be shortened. The more plentiful the roots are, especially those of a fibrous nature, the longer the branches may be left, and the more sparse the roots the closer should be the pruning of the shoots. See our reply to "J. W." on pruning and planting Apricot trees. You will perhaps not err by removing about one-fourth the length of the branches of your trained Plum and Cherry trees, but the roots must be your guide. The pyramid trees should be thinned out if the growths are numerous, the main branches being from 9 inches to a foot apart, any side growths on them shortened to about two buds, the terminals being left 8 or 9 inches long according to their strength and the symmetry of the trees. Stone fruits are best attended to by disbudding and pinching the growths in summer so as to reduce the necessity of winter pruning to a minimum. Morello Cherries when established require scarcely any pruning in the winter, as the wood if trained thinly in the summer in order to become matured bears throughout its length like that of Peaches; it is often advisable, however, to both thin out and shorten the shoots of newly planted trees to insure a good growth the first season, then disbudding to prevent overcrowding is the most important point in management. The "Garden Manual," published at this office, price 1s. 6d., post free 1s. 9d., contains practical instructions on the management of trees.

**Names of Fruits.**—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. (J. L.).—The Grapes were more or less broken in transit. They appear to be well-kept examples of Foster's Seedling. (A. Brook).—The Pear is Vicar of Winkfield. The Apple we do not recognise. (H. H. Craw).—Nos. 1 and

2 are quite correct. No. 3 is not Old Nonpareil. We believe it to be Ked-dleston Pippin. (J. Beadle).—1, Flower of Kent; 2, Wormsley Pippin; 3, Pomme de Neige; 4, Alfriston; 6, Calville Blanche. (Old Subscriber).—1, Ne Plus Meuris; 2, Comte de Lamy; 3, Not known; 4, Josephine de Malines. (J. A.).—Mère de Ménage. We have boxes of fruit—indeed, we always have—with no senders' names enclosed, and the specimens cannot consequently be named.

### COVENT GARDEN MARKET.—JANUARY 13TH.

MARKET quiet, with short supplies, owing to the frost. Good samples of Grapes shorter.

		s. d.		s. d.	
FRUIT.					
Apples .. ..	½ sieve	1	0	3	6
" Canadian ..	barrel	10	0	12	6
" Nova Scotia ..		10	0	12	6
Cobs, Kent ..	per 100 lbs.	27	6	30	0
Figs .. ..	dozen	0	0	0	0
Grapes .. ..	lb.	1	6	4	0
Lemons .. ..	case	8	0	10	0
Melons .. ..	each	0	0	0	0
Oranges .. ..	100	4	0	6	0
Peaches .. ..	per doz.	0	0	0	0
Pears, kitchen ..	dozen	0	6	1	0
" dessert ..	dozen	0	0	0	0
Pine Apples English ..	lb.	1	0	1	6
Plums .. ..	½ sieve	0	0	0	0
St. Michael Pines ..	each	2	0	6	0

		s. d.		s. d.	
VEGETABLES.					
Artichokes .. ..	dozen	1	0	0	0
Asparagus .. ..	bundle	0	0	0	0
Beans, Kidney ..	lb.	0	6	1	0
Beet, Red .. ..	dozen	1	0	2	0
Broccoli .. ..	dozen	0	9	1	0
Brussels Sprouts ..	½ sieve	2	6	3	0
Cabbage .. ..	dozen	0	0	0	0
Capsicums .. ..	100	1	6	2	0
Carrots .. ..	bunch	0	3	0	4
Cauliflowers .. ..	dozen	2	0	3	0
Celery .. ..	bundle	1	6	2	0
Coleworts .. ..	doz. bunches	2	0	4	0
Cucumbers .. ..	each	0	9	1	6
Endive .. ..	dozen	1	0	2	0
Herbs .. ..	bunch	0	2	0	0
Leeks .. ..	bunch	0	3	0	4
Lettuce .. ..	dozen	1	0	1	6
Mushrooms .. ..	punnet	0	6	1	0
Mustard and Cress ..	punnet	0	0	0	0
Onions .. ..	bunch	0	3	0	0
Parsley .. ..	dozen bunches	2	0	3	0
Parsnips .. ..	dozen	1	0	2	0
Potatoes .. ..	cwt.	4	0	5	0
" Kidney .. ..	cwt.	4	0	5	0
Rhubarb .. ..	bundle	0	2	0	4
Salsify .. ..	bundle	1	0	0	0
Scorzonera .. ..	bundle	1	6	0	0
Seakale .. ..	per basket	1	6	2	0
Shallots .. ..	lb.	0	3	0	6
Spinach .. ..	bushel	2	0	4	0
Tomatoes .. ..	lb.	0	6	1	0
Turnips .. ..	bunch	0	4	0	0

		s. d.		s. d.	
PLANTS IN POTS.					
Aralia Sieboldi ..	dozen	9	0	18	0
Arbor vitae (golden)	dozen	6	0	18	0
" (common) ..	dozen	6	0	12	0
Arum Lilies .. ..	dozen	12	0	18	0
Azaleas .. ..	dozen	24	0	42	0
Begonias .. ..	dozen	6	0	12	0
Bouvardia .. ..	dozen	12	0	18	0
Cineraria .. ..	dozen	10	0	12	0
Cyclamen .. ..	dozen	12	0	24	0
Cyperus .. ..	dozen	4	0	12	0
Dracena terminalis,	dozen	30	0	60	0
" viridis .. ..	dozen	12	0	24	0
Erica, various ..	dozen	12	0	24	0
Euonymus, in var.	dozen	6	0	18	0
Evergreens, in var.	dozen	6	0	24	0
Ficus elastica ..	each	1	6	7	0
Ferns, in variety ..	dozen	4	0	18	0
Foliage Plants, var.	each	2	0	10	0
Hyacinths .. ..	dozen	9	0	12	0
Marguerite Daisy ..	dozen	8	0	12	0
Myrtles .. ..	dozen	6	0	12	0
Palms, in var. ..	each	2	6	21	0
Pelargoniums, scarlet,	doz.	6	0	9	0
Poinsettia .. ..	dozen	12	0	18	0
Primulas, single,	dozen	4	0	6	0
Solanum .. ..	dozen	8	0	12	0
Tulips .. ..	12 pots	6	0	9	0

		s. d.		s. d.	
CUT FLOWERS.					
Abutilons .. ..	12 bunches	2	0	4	0
Acacia (Mimosa), Fr.,	per bunch	0	6	1	0
Arum Lilies .. ..	12 bunches	6	0	9	0
Azalea .. ..	12 sprays	1	0	1	6
Bouvardias .. ..	per bunch	0	6	1	0
Camellias .. ..	12 bunches	3	0	6	0
Carnations .. ..	12 bunches	1	0	3	0
Chrysanthemums ..	12 bunches	2	0	4	0
" .. ..	12 bunches	9	0	18	0
Cyclamen .. ..	doz. bunches	0	4	0	9
Epiphyllum .. ..	doz. bunches	0	6	0	9
Encharis .. ..	per dozen	4	0	6	0
Gardenias .. ..	12 bunches	6	0	18	0
Hellebore .. ..	doz. bunches	0	6	1	0
Hyacinths, Roman,	12 sprays	1	0	1	6
Lapageria, white,	12 bunches	2	0	3	0
Lapageria, red ..	12 bunches	1	0	2	0
Lilium longiflorum,	12 blms.	9	0	12	0
Marguerites .. ..	12 bunches	6	0	8	0
Mignonette .. ..	12 bunches	3	0	6	0
Pelargoniums, per 12	trusses	1	6	2	0
" scarlet, 12 trusses		0	9	1	0
Poinsettia .. ..	12 bunches	4	0	8	0
Roses (Indoor), per	dozen	2	0	6	0
" Tea, French ..	dozen	0	9	1	6
" red, French ..	dozen	3	0	4	0
Tropaeolum .. ..	12 bunches	2	0	3	0
Tuberose .. ..	12 bunches	1	6	3	0
Tulips .. ..	dozen bunches	1	0	1	6
Violets .. ..	12 bunches	1	0	1	6
" Czar, Fr. ..	bunch	1	6	2	0
" Farnes, French, per	bunch	4	0	6	0



### AGRICULTURAL PROGRESS.

WITH a full recognition of the absolute necessity of close attention to economy in every detail of farming comes a natural longing for efficiency in the implements and machinery of the farm. In very few of these do we yet find absolute perfection, but progress is being made, in many instances with singular rapidity, and we may certainly look with satisfaction from the sickle, flail, plough, wooden roller, and heavy tumbrils of our forefathers to the implements of our own day. Yet the change from unwieldy old tools to the lighter yet more useful modern ones has been, and in point of fact is still, marvellously slow. Many a man still clings persistently to old tools, and old half-worn farming plant is still in much demand, as the brisk competition by buyers at Michaelmas auction sales shows plainly. The



reason for this is not far to seek. Old implements are as dear to the farmer as old customs, but it is undoubtedly the high prices of new implements and machinery that militate against anything like a brisk sale. When will middlemen come to see that it is as much to the advantage of the seller as the buyer to keep down prices? The large profits made upon penny postage, cheap telegrams, railway travelling, and cheap literature, all point to the general advantage of the nimble ninepence over the slow shilling. The simile may appear somewhat far-fetched, but it is nevertheless true and forcible enough. Close inquiry into cost of production, and the price paid by the farmer after the different profits have been added to it, show plainly how heavy is the tax he is made to pay to the middlemen. There is a case in point. A few months ago we required a new farm cart for one of our farms, and we wrote for prices to an implement maker at a town only a few miles distant from the farm. By return of post the keen tradesman sent us a bulky packet of his illustrated circulars, an illustrated catalogue—the time of trains arriving and leaving the town, an offer to meet us at the railway station with a conveyance, and a somewhat premature expression of his gratification at having secured our custom. Now, the price list showed us that the sort of cart we required would cost from £17 to £29, so we went to the village wheelwright, whose offer to make a strong useful farm cart for £11 was at once accepted, and the cart made for that moderate sum is one of the best we have. Plain, strong, yet not too heavy, without any pretentious and useless embellishments, it compares favourably with any of the costly patent carts for which we have to pay so dear. Depend upon it that with low prices and good workmanship there would be a much larger sale, not only of carts, but of all other useful farming implements.

Simplicity and efficiency are generally found in pleasing combination in the best implements and machinery. Elaborate combinations have almost invariably to make way for simple forms. That triumph of ingenuity and skill, Hornsby's sheaf-binding reaper, gains in utility with greater simplicity. About half the parts of the knotter have been discarded. Steel has largely taken the place of iron, affording lightness with strength, and several other improvements have been made. Very pleasant and instructive is the sight of one of these wonderful machines at work. A degree of speed, neatness, and finish is attained altogether superior to anything we have met with in the harvest field. Wise indeed in their generation were the farmers who secured "a Hornsby" for last harvest. We were favoured with glorious weather during the earlier weeks of harvest, and with the aid of self binding reapers the work was got through with in half the usual time. Very little Barley was washed or discoloured, all being safely housed before the long spell of wet weather set in, and which spoilt so much Barley. The result is significant. Barley saved before the rain has commanded 40s. a quarter, while Barley discoloured by rain has been sold for half that sum. Surely the lesson is sufficiently plain to be grasped by every farmer. We attend a corn market where there has for the last two months been an average weekly sale of 5000 quarters of Barley, and while the range of prices has been considerable, yet every sample has undoubtedly been treated on its merits, some ranging a little higher or lower perhaps, according to the keenness of buyer and seller. Careful threshing and thorough dressing are also highly important factors in the production of a good sample of corn. There is much difference in the work of threshing machines as well as of corn-dressers, and we ought not to rest satisfied with anything short of the best work. Messrs. Rainforth's flat adjustable corn screen is one of the best we have seen, and the Judges of implements at the Preston meeting of the Royal Agricultural Society marked their sense of its high merit by the award of a silver medal. Thorough separation of head and tail corn and of the seeds of weeds is what we require, and this is the test to apply to

a corn-dresser, which ought always to be purchased subject to such a trial.

We were glad to see elevators brought into more general use last season, both for stacking hay and corn. Considerable economy of labour is effected by means of an elevator, which does the heavy work of pitching on to a stack expeditiously and well, two or three men less being required. Brisk prompt action is all-important during harvest, and whatever contributes to it is highly valuable. Thoughtful discussion of such matters now should enable us to arrange our plans for the coming season of activity both wisely and well.

#### WORK ON THE HOME FARM.

Much good work is being done in cutting down timber in hedgerows, enclosing arable land, in thinning timber in woods, in park clumps and belts, and in tree planting. This part of the home farmer's duties is worthy of especial attention, and a man must have special training for it. The planting and arrangement of trees for effect as well as for profit may be said to fall within the province of the landscape gardener, but those who have the management of landed estates find their services more highly valued and more profitable to themselves if they are really skilful in the management and arrangement of trees. Although owners of such property may not have practical knowledge, yet they generally possess refined taste, which enables them to recognise and appreciate skilful work when they see it. Fondness for trees ought never to be allowed to interfere with judicious thinning. By all means plant thickly at first, but do take care to thin plantations before growth becomes so much crowded as to affect the health or symmetrical growth of the permanent trees. Only a day or two previous to writing this note we were asked to inspect some neglected belts and clumps in a park, and we found that in some of them the trees had suffered so much from overcrowding that fine timber or ornamental growth was now an impossibility. Every tree in the interior was so drawn up and attenuated as to be quite spoilt. Some of the outer ones were more vigorous, but the branches' growth was one-sided and totally deficient of symmetry, and our advice was either to leave the clumps alone or to destroy and replant them. Our own home practice this season consists in opening out many pleasant views and fine trees in park scenery; in giving an air of lightness and expanse to the surroundings of the mansion by so thinning and opening belts near the dressed grounds as to bring some fine trees in the park into sight from the garden, and some views of distant scenery. Young plantations have been thinned sufficiently to let in air and light to the permanent trees, of which there are many thousands, consisting of thriving young Cedars, Scotch and Austrian Pines, Larch, Wellingtonias, White Spruce, Piceas, and a tasteful mixture of such deciduous trees as Limes, Sycamores, Maples, Oaks, Beeches, Poplars, Chestnuts, and Ash. The planting of underwood is also being done, Spanish Chestnut being planted in all sound well-drained soil, Ash in deep heavy soil, and Alder in low-lying damp places. Where there is a demand for hoop wood for cement casks Hazel proves profitable underwood, and it grows freely in deep or shallow soil that is not waterlogged. The most unprofitable underwood is Oak-scrub, and it is for this reason that we always insist upon having all Oak trees in woods grubbed up by the roots and not sawn off.

#### OUR LETTER BOX.

**Drying Bacon (J. D.).**—We should not venture to dry the bacon in a stovehole in which coke is burned on account of the sulphurous fumes emitted, and which would be absorbed by the flitches, and impart a flavour that would be the reverse of palatable.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.						Rain
1886. January.		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		In. grass		
			Dry.	Wet.			Max.	Min	In sun.	On			
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.		
Sundday .....	3	30.057	40.2	39.2	S.W.	40.8	50.8	33.4	52.7	26.5	0.224		
Monday .....	4	29.718	49.4	40.2	W.	41.4	50.4	39.5	52.2	32.3	0.123		
Tuesday .....	5	29.672	35.4	32.9	S.W.	41.8	45.4	34.4	63.7	28.6	0.518		
Wednesday ..	6	29.534	32.2	32.2	N.E.	40.2	39.4	31.8	51.3	27.8	0.289		
Thursday ....	7	30.104	26.7	26.4	N.E.	38.7	31.7	24.4	38.6	15.3	0.173		
Friday .....	8	29.561	33.7	33.2	N.	38.2	35.2	20.8	58.2	8.3	—		
Saturday ....	9	29.779	29.7	28.9	N.	37.4	36.3	24.8	67.6	18.3	—		
		29.775	35.3	33.1		39.8	41.3	29.9	54.9	22.4	1.327		

#### REMARKS.

3rd.—Fine day, but wet night.  
 4th.—Warm and wet all day, clear cool night.  
 5th.—Fine, bright, and cold.  
 6th.—Heavy snow, 4½ inches deep at 9 A.M., 5½ inches at 10 A.M., 7 inches at 11 A.M., and 9 inches at noon; fine bright afternoon.  
 7th.—Fine, bright, and freezing hard.  
 8th.—Nearly an inch more snow in the night, followed by a thaw; fine bright day.  
 9th.—Gloriously fine and bright; solo halo in morning.  
 Temperature rather below the average, and a heavy fall of snow on Wednesday, 6th.—G. J. SYMONS.





## COMING EVENTS

21	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
22	F	Quekett Club at 8 P.M.
23	S	Royal Botanic Society at 3.45 P.M.
24	SUN	3RD SUNDAY AFTER EPIPHANY.
25	M	Royal Geographical Society at 8.30 P.M.
26	TU	
27	W	Society of Arts at 8 P.M.

### LIME FOR VINE BORDERS.

**I**T is a very general practice in gardening establishments to remove the surface soil or manure from the borders after pruning the Vines or previous to starting them into growth, and to give a fresh supply. These annual top-dressings are often composed of fibry loam and decayed manure with a small per-centage of bones, wood ashes, or soot. A compost of this description is preferred by many to a heavy dressing of cow or other farmyard manure, either in a fresh or half-decayed state. The latter is perhaps more generally used for the majority of Vine borders, for it can often be had for this purpose when fibry loam cannot. Where appearances have to be considered and manure on the surface of the border would be objected to, it is readily concealed by a thin coating of loam. For some years I used the above compost in preference to all manure, and mulched the surface of the border afterwards with the manure from spent Mushroom and hotbeds. The latter was not done so much to provide food for the Vines as to keep the surface of the border moist during bright weather, for in this condition the roots work with great activity near the surface. When the roots are near the surface to commence with, and the border is top-dressed and mulched afterwards with some moisture-holding material, this is certain to become full of active feeders every season. The opposite is the case when the surface of the border is dry, for the roots go downwards.

There can be no doubt that in some instances a heavy dressing of manure will prove beneficial. The Vine food that it may be most necessary to supply annually, or at certain intervals, to maintain the border in a fertile state, depends chiefly upon the amount of suitable food the staple soil of the border contains, and how long it has been made. If we suppose that the compost used at the commencement contained all that is essential for the growth of the Vine and perfecting the fruit, it will at some time require renewing. The formation of the borders and the enormous quantity of water supplied to them during a season or two is sufficient to wash out of the soil much food of the utmost value for the proper support of the Vines. Even if they took nothing out of the border it would become practically unfertile in less time than many really suppose through the cause indicated. Under such circumstances it becomes necessary to add annually or at certain periods fresh supplies of food or the crops would fail.

Experience and observation have convinced me that more borders are deficient in calcareous matter than anything else requisite for the Vine. There may be a few examples to the contrary. I know of one instance where calcareous matter was too abundant in the soil used for the Vines, and they failed to give satisfaction until a large per-centage of fresh soil was imported from a distance, and ever since they have been all that could be desired. In many cases the borders are made of loam that is practically destitute of lime, and thousands of cultivators have no other chance than to use it. This deficiency may be provided against, and fre-

quently is, by adding lime or lime rubbish to the compost when the border is first made. The quantity added may prove sufficient for a few years, and the Vines give every satisfaction, but afterwards the fruit fails to stone or colour and come up to the standard required. The usual top-dressings of soil or manure may be supplied every season, but these prove of no avail—in fact, heavy dressings of manure soon prove detrimental if the border has become deficient of lime, which is of the utmost importance to the production of fine well-coloured fruit.

Mistakes are often made through the want of knowledge as to whether the soil to be used for the borders and top-dressing contains lime or not. Frequently under such circumstances an insufficient quantity of lime is given, which perhaps for years results in the Vines not giving the cultivator in charge the satisfaction he desires. Some years ago the soil of an old kitchen garden that had been heavily manured failed to grow Cabbage or anything else, and this was rendered thoroughly fertile by applying a heavy dressing of fresh lime. The improvement of the soil was so marked that I was tempted to try the effect of lime on Vines by applying it to the border in which they were growing and being forced. The Grapes had advanced to the colouring stage, when suddenly they came to a standstill. The lime was mixed with water in a tank outside the house, and then poured upon the border and washed in with tepid water. The effect was soon observed, and the Grapes coloured fairly well, but all hopes of their doing so had been given up. In autumn several barrowfuls of lime were worked into the border, and little trouble was experienced in colouring the Grapes afterwards.

Previous to this we had commenced making some new borders on the "piece-meal" system, but added to the loam used only a very small quantity of lime, which experience has since taught us was insufficient. Much more lime than many suppose must be added to soil for the benefit of Vines if they are to give the greatest satisfaction. When the loam used is almost destitute naturally of this ingredient no less than 12 per cent. should be added when the border is first formed, or in this proportion as each part of the border is made. When this is incorporated with the soil before it is placed in the border it will appear very white, and almost lead beginners to think that they are employing too much. But this will not be the case if the loam is in the condition indicated, and contains practically no lime. After the whole of the border has been completed, say for two years, no less than 10 per cent. should be added to the compost advised above for top-dressing every second year. We prefer adding to the quantity of compost used about half the quantity annually, and have found this practice to succeed admirably. When mixing the compost the manure, as well as the other ingredients, are thoroughly incorporated before they are applied to the border. The lime should be perfectly fresh, and reduced to powder by pouring water upon it. The heap of soil should then be turned over and left under cover in a shed for a day or two if possible, and the moisture of the loam and manure reduces to powder any lumps of lime that may not have been thoroughly reduced by the first operation. By this means the lime is thoroughly mixed with the soil before it is placed on the surface of the border. When the border is drained liberally and water given frequently more lime is washed out of the soil than would be the case with less frequent applications of water and less perfect drainage.

There must be thousands of Vine borders composed of soil in which lime did not naturally exist, and if not added when the border was made are at the present time short of this important substance. The greater part of many borders—that is, as far as the staple soil of the border is concerned—within my own knowledge has been made with turf cut from land with a sandstone formation. It is perfectly clear from the luxuriant growth of Rhododendrons and other



non-lime-loving plants that the soil from such formations contains only a very small per-centage of lime, and in many instances practically none. The growth of these plants—that is, when in the native soil, will prove an invaluable guide by which the soil to be used may be judged. But beginners must not be mistaken when practising on what is technically called the “outcrop” of the layer or stratum of sandstone, for the soil may differ greatly only 100 yards away. Under these circumstances the growth of the plants referred to might be totally altered, and therefore judgment and forethought are needed in selecting soil, and adding lime to it for Vines. In cases where borders have been made with soil from a sandstone formation, and the Grapes are not colouring well, or the Vines doing satisfactorily in other respects, and the quantity of lime given them has been small, they might be materially improved by a liberal dressing for a season or two, the dressings of manure being dispensed with for that time.—WM. BARDNEY.

## CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 10.)

### SELECTION OF VARIETIES FOR VARIOUS PURPOSES.

In giving a selection of varieties for various purposes I have endeavoured to name those which are distinct. They are all well adapted for growing in the style in which they are classed. There are perhaps a few newer varieties which will take a leading position when they become better known, but not having had an opportunity of testing them I prefer to leave them out through fear of causing disappointment. For those growers who cannot have all the varieties named in each section I have placed the varieties first which I consider the best; therefore a reduced selection can be made according to the number required. As these varieties are so well known the full descriptions and colours of each can be had from any of the many excellent catalogues now published.

#### FORTY-EIGHT JAPANESE VARIETIES FOR CUT BLOOMS.

Mdme. C. Audiguier	P. ter the Great
Belle Paule	Elaine
Fair Maid of Guernsey	Soleil Levant
Meg Merrilees	Album plenum
Jeanne Delaux	Japonaise
Baron de Prailly	Mr. John Laing
Criterion	Mdme. Bertie Rendatler
Val d'Andorre	Mdme. de Sevin
Boule d'Or	Balmoreau
Mdlle. Lacroix	Flamme de Punch
Margaret Marrouch	Mons. Tarin
Comte de Germiny	Grandiflorum
Duchess of Albany (Jackson)	Fanny Bouchardat
M. Astorg	M. Delaux
Mrs. Mahood	Mdme. Deveille
M. Ardene	Sarnia
Sceptre Toulousain	Bouquet Fait
Golden Dragon	Dr. Macary
Fernand Feral	Red Gauntlet
Hiver Fleuri	Margot
Thunberg	Père Delaux
M. Burnet	Triomphe du Nord
L'Adorable	L'Africaine [George Gordon]
Triomphe de la rue des Châlets	La Nympe

#### TWELVE JAPANESE FOR SPECIMENS.

Bouquet Fait	Comet
Hiver Fleuri	Lady Selborne
L'Africaine	Fair Maid of Guernsey
La Nympe	Album plenum
Peter the Great	Joseph Mahood
Mdme. Bertie Rendatler	Triomphe du Nord

#### FORTY VARIETIES INCURVED FOR CUT BLOOMS.

Lord Alcester	Lady Carey
Empress of India	Sir Stafford Carey
Queen of England	Princess Beatrice
Golden Empress	Cherub
Golden Queen of England	Baron Beust
Alfred Salter	Barbara
Princess of Wales	Nil Desperandum
John Salter	Miss Mary Morgan
Lord Wolseley	White Venus
Prince Alfred	Novelty
Jeanne d'Arc	Beauty
Hero of Stoke Newington	Mr. Brunlees
Jardin des Plantes	Eve
Mrs. Heale	Nonpareil
Princess of Teck	Bronze Jardin des Plantes
Refulgence	Yellow Perfection
Mrs. Bunn	Pink Venus
Empress Eugénie	Mabel Ward
Mr. W. Shipman	Lady Slade
Lady Hardinge	Prince of Wales

#### TWELVE INCURVED FOR SPECIMENS.

Lord Alcester	Mrs. Sharpe
Empress of India	Mrs. G. Rundle
Queen of England	Mrs. Dixon
Golden Queen of England	George Glenny
Golden Empress	Venus
Prince of Wales	Lord Derby

#### FIFTEEN REFLEXED VARIETIES FOR CUT BLOOMS.

Cullingfordi	Phidias
King of Crimsons	Peach Christine
Golden Christine	Pink Christine
Distinction	Chevalier Damage
Mdme. Madeline Tezier	Felicity
Mrs. Forsyth	Sir Edwin Landseer
Cloth of Gold	Emperor of China
Dr. Sharpe	

#### SIX REFLEXED FOR SPECIMENS.

Dr. Sharpe	Pink Christine
Mrs. Forsyth	King of Crimsons
Peach Christine	Chevalier Damage

#### TWELVE ANEMONE VARIETIES FOR CUT BLOOMS.

Lady Margaret	Empress
Fleur de Marie	Georges Sands
Gluck	Prince of Anemones
Acquisition	Mdme. Goderau
Minnie Chaté	Princess Louise
Mrs. Pethers	Louis Bonamy

#### EIGHT VARIETIES ANEMONE JAPANESE FOR CUT BLOOMS.

Fabian de Mediana	Margaret Villageoise
Mdme. Clos	Souvenir de L'Ardenne
Sœur Dorothee Souille	Mdme. Berthe Pigny
Mdlle. Cabrol	Duchess of Edinburgh

#### TWENTY FOUR VARIETIES FOR GROUPING.

Val d'Andorre	George Glenny
Triomphe du Nord	Jeanne Delaux
Mons. Henri Jacotot	Meg Merrilees
Mdme. de Sevin	Elaine
M. Astorg	King of Crimsons
Cullingfordi	Jardin des Plantes
Mdlle. Lacroix	Prince Alfred
Bouquet Fait	Mr. Bunn
Princess of Teck	Chevalier Damage
Mdme. C. Audiguier	Simon Delaux
Mrs. G. Rundle	Dr. Macary
Mrs. Dixon	Hero of Stoke Newington

#### TWENTY DECORATIVE VARIETIES.

Lady Selborne	Mdme. Desgrange
Mrs. G. Rundle	Triomphe du Nord
Mrs. Dixon	Simon Delaux
George Glenny	Mons. Mousillac
Mons. H. Jacotot	L'Africaine
Cullingfordi	Margot
James Salter	La Nympe
Flocon de Nieve	Flambeau
King of Crimsons	Dr. Sharpe
Bouquet Fait	Progne

#### FOURTEEN VARIETIES FOR LATE BLOOMING.

Princess of Teck	Miss Maréchaux
Hero of Stoke Newington	Fanny Bouchardat
Meg Merrilees	Ethel
Ceres	Miss Margaret
Grandiflorum	Thunberg
Mrs. C. Carey	Nonpareil
Fair Maid of Guernsey	Lady Carey

#### FIFTEEN VARIETIES OF POMPONS.

Black Douglas	Pygmalion
President	Nellie Rainford
Marabout	Prince of Orange
Toussaint Maurisot	Reine d'Or
La Pureté	Cendrillon
Madame Marthe	Eléonore
Golden Madame Marthe	Rosinante
Lizzie Holmes	

#### TWELVE VARIETIES ANEMONE POMPONS.

Madame Montels	Marguerite de Coi
Queen of Anemones	Perle
Antonius	Sidonie
Mr. Astie	Marie Stuart
Regulus	Zohedie
Calliope	Aglaia

#### SIZES OF EXHIBITION BLOOMS (A GUIDE).

It is difficult for inexperienced growers to know what size to aim at in growing Chrysanthemum blooms for exhibition. They are often in error in judging their own flowers, not having seen really representative specimens of the various kinds. The best of all guides is measuring the flowers, and keeping records of them for comparison in following years. I give the sizes of some of the



blooms which have been grown at Swanmore Park. The list could be much increased, but will suffice as typical of large, medium, and smaller varieties. Larger measurements could be given, but not consistent with the depth and solidity required, these qualities being absolutely necessary for blooms to win in good company at the leading exhibitions. Flowers are often measured larger in diameter, particularly in the early season, but they lack depth and solidity; therefore I should warn young beginners to pay more attention to depth than mere width, especially in the incurved section. The first figure following the name in the following list denotes the diameter of the flower in inches, and where a second figure is given that signifies the depth of the bloom. The best way to measure the blooms when on the plant is to place the left hand under the florets and gently raise them to a horizontal position, then with a rule passed under the size can be determined. In the case of irregular-petalled kinds it is not well to take the extreme outside size, but take a fair average measurement consistent with the depth of the flower. Sometimes one or two florets will have advanced a long way beyond the general quantity, and to measure such would be misleading, as all flowers of the same kind do not have these extra long florets. In considering the depth allowance must be made for the reduction in that part which is made when incurved blooms are cupped ready for show, to allow of the petals being arranged in proper form, and reduces the flowers in depth considerably, because the weight of the petals without support has a tendency to deepen the blooms, and when measured in this manner disappointment often occurs when prepared for exhibition. Ours are generally measured when arranged on the stands ready for conveyance to the show.

**JAPANESE.**—M<sup>de</sup>. Audiguier, 7 by 6 inches; Meg Merrilees, 9 inches; Fair Maid of Guernsey, 8½ inches; Comte de Germiny, 6 by 4 inches; Elaine, 6 by 4 inches; Baron de Prailly, 9 inches; Jeanne Delaux, 6 inches; Criterion, 6½ by 4 inches; Boule d'Or, 8 by 5 inches; Marguerite Marrouch, 6½ by 4½ inches; M<sup>lle</sup>. Lacroix, 7½ by 4 inches; Hiver Fleuri, 6 by 4 inches; Peter the Great, 6 by 4 inches; Mons. Tarin, 7½ inches; Thunberg, 7 by 4½ inches; M. Ardene, 7 by 4 inches.

**INCURVED.**—Lord Wolseley, 6 inches; John Salter, 6 inches; Jeanne d'Arc, 5 by 4½; Princess of Wales, 6 by 5 inches; Empress of India, 6 by 4 inches; Queen of England, 6 by 4 inches; Golden Empress, 5½ by 3 inches; Alfred Salter, 6 by 3½ inches; Hero of Stoke Newington, 5 by 4 inches; Princess Teck, 4½ by 2½ inches; Mrs. Bunn, 5 by 3 inches; Refulgence, 5 by 3 inches; Barbara, 4½ inches; Eve, 4½ by 2½ inches; Jardin des Plantes, 5½ inches; Lady Hardinge, 4½ by 2½ inches.

**REFLEXED.**—King of Crimsons, 6 by 4 inches; Golden Christine, 5 by 3 inches; Dr. Sharpe, 5 by 2½ inches; Cloth of Gold, 5 by 2½ inches; Mrs. Forsyth, 4½ by 3½ inches; Pink Christine, 4½ by 3 inches.

**ANEMONE JAPANESE.**—M<sup>de</sup>. Clos, 6½ inches; M<sup>de</sup>. Cabrol, 8 inches; Sœur Dorothee Souille, 6 inches; Fabian de Mediana, 8 inches.

**ANEMONE FLOWERED.**—Acquisition, 6 inches; Fleur de Marie, 5 inches; Mrs. Pethers, 5 inches; Gluck, 4½ inches.

—E. MOLYNEUX.

(To be continued.)

## THE CULTIVATION OF THE LEMON.

I KNOW of few places in this country where the Lemon is grown specially for its fruit. The plants, like the Orange, are generally grown in boxes to ornament the terrace and flower garden during a few months in the summer, and then stored away for the winter in some dark shed or barn where they will be safe from the effects of severe frosts. Plants treated in this way cannot be expected to produce fruit in quantity or of good quality.

The cultivation of the Lemon as a fruit-bearing tree is simple enough to those who possess the means. When properly attended to the plant will yield abundant crops of much larger and finer fruits than the imported ones that are so plentiful in our markets. The fruit can be grown to great perfection in a lean-to vinery or Peach house when planted out and trained on the back wall.

Margam Park, in this county, has been long famed for its large collection of Orange and Lemon trees, some of which are of great antiquity. By far the greatest number of these are grown in large boxes to ornament the terraces and pleasure ground, where they produce flowers in great abundance, which fill the air in the immediate vicinity with their sweet fragrance. Besides those which are grown in boxes, a great many varieties of Oranges and a few Lemon trees are planted out in the border of a long lean-to greenhouse, and trained on the back wall, which they completely cover from top to bottom, and mature heavy crops of fine fruits annually. It was from these trees that Mr. Muir gathered the fine collection of Oranges that obtained the gold medal at the Manchester International Flower Show a few years since. The first time I saw the Lemon trees growing in this way at Margam Park, some ten or eleven years since, I was so pleased with them and the crops they were

bearing, that I resolved to grow some in the same way here. I raised a few Orange plants from seeds the same year for stocks, and when these were sufficiently strong I obtained a few Lemon scions from Mr. Muir, and grafted them. In due time three of the best of these were planted close to the back wall of a lean-to vinery in a compost principally of rich yellow loam, a little leaf mould, and some crushed bones. The plants in a short time covered the wall, and they have been carrying heavy crops of much better fruits than we can get to buy for the last five or six years.

I told one of my young men to count the fruits which are nearly ripe on the three trees to-day. This he did, and informed me there were no fewer than 230. Besides those on the trees I have gathered a great many at different times. During the time the fruits are swelling the trees receive liberal supplies of liquid manure, and they are never allowed to suffer for the want of water at any time. The trees give the back wall a furnished appearance. They do not interfere in any way with the cultivation of the Vines, and their fruits are much prized by the housekeeper at all seasons.—A. PETTIGREW, *Cardiff*.

[Splendid examples of culture accompanied this communication, two sprays each about a foot long, bearing a dozen Lemons, superior to the best we have seen in fruiterers' shops during the week.]

## ON THE STATISTICS OF THE CAPE BULBS.

[Read at a meeting of the Horticultural Club, January 12th, 1886, by J. G. Baker, F.R.S.]

I HAVE not, like Dr. Masters and Professor M. Foster, had any experience worth taking into account in practical gardening; but I hold strongly to the opinion that botanists and gardeners should work together hand in hand, and continually consult one another, and that if they do not do this the work of both will be so much the worse for it. For instance, in these plants we are now considering a description drawn from dried specimens alone is always more or less incomplete and unsatisfactory, and in the *Aloineæ* to draw up any reasonably satisfactory description from dried specimens is altogether out of the question.

Of all the members of the rich Cape flora, which includes the garden Heaths, *Pelargonium*, and *Mesembryanthemums*, these bulbs are the plants which possess the greatest horticultural interest, and are at the present time exciting the greatest share of attention. One of the most interesting facts in botanical geography is the way in which the three bulb bearing natural orders, *Iridaceæ*, *Amaryllidaceæ*, and *Liliaceæ*, are concentrated at the southern extremity of the African Continent. All that I can attempt to do in the time we have at command is to lay before you the broad general facts of the case.

In *Iridaceæ* there are in the whole world fifty-seven genera and 700 species. Of these thirty-two genera and 374 species, or more than half the total number, belong to the Cape; of the genera twenty are endemic, nine found also in tropical Africa, and only three widely dispersed. The large genera, taking them in order of size, are *Gladiolus*, *Moræa*, *Geissorhiza*, *Tritonia*, *Babiana*, *Hesperantha*, *Ixia*, *Romulea*, *Lapeyrousia*. In *Amaryllidaceæ* there are in the whole world sixty-four genera and 650 species, and of these twenty-one genera and 154 species belong to the Cape; one third of the genera and a quarter of the species. Of the genera, thirteen are endemic, three also found in tropical Africa, and five widely dispersed. The large Cape genera are *Hypoxis*, *Hæmanthus*, and *Cyrtanthus*. In *Liliaceæ* there are in the world 187 genera and 2100 species; of these there are at the Cape forty-nine genera and 621 species; of the forty-nine genera eighteen are endemic, fifteen found also in tropical Africa, and sixteen widely dispersed. The large Cape genera are *Haworthia*, *Aloe*, *Gasteria*, *Asparagus*, *Ornithogalum*, *Scilla*, *Anthericum*, *Lachenalia*, *Eriospermum*, *Bulbine*, and *Kniphofia*.

The area of Africa south of the tropic is about a million square miles. The total area of Cape Colony proper is about a quarter of a million square miles, or about one-two-hundredth part of the whole land area of the world.

In the whole world there are in these three orders 303 genera and 3450 species; and of these 102 genera and 1148 species, or about one-third of the whole number, belong to the Cape. Nearly all the Cape species are endemic; and of the 102 genera, fifty-one, or just one-half, are endemic, twenty seven represented also in tropical Africa, and twenty-four are widely dispersed.

## PHYSICAL GEOGRAPHY AND CLIMATE.

In climate one correlates the idea of bulbs with variability in heat or moisture, or usually in both; a high degree of heat in summer, and the of protection from long periods of drought.



Of the 1100 Cape types about 200 (Bulbine and the four genera of Aloineæ) are succulents, the Asparagaceæ, Anthericeæ, and non hulbous Iridaceæ (such as *Aristea*, *Witsenia*, and *Bobartia*) are about 150 species, leaving a balance of 800 species, in which the rootstock is either a bulb, corm, or tuber.

Turning to the Encyclopædia nearest at hand, I find the physical geography summed up as follows—"The general character of the scenery is rocky and arid; mountains, naked and uncultivated, stony valleys without a tree, a prevailing monotony, absence of shade and verdure and water. For the whole region the coldest months are June and July, the warmest December and January. For Cape Town the annual mean temperature is 62° Fahr., the minimum in the shade being 34°, and the maximum about 100°. All along the south coast there is very little variation in temperature. On Table Mountain, which is nearly 400 feet above sea level, snow lies sometimes for two or three days. At Cape Town the annual rainfall is 24 inches; north-east of Cape Town the annual rainfall sinks to 12 inches. Along the south coast it increases as we travel east and reaches 33 inches at Graham's Town. Parallel with the south coast the land rises in three successive terraces. The highest of these, the great Karoo, has an elevation of 3000 feet, a length from east to west of 300 miles, and of 80 miles from north to south. For nine months of the year the soil is quite bare, and even in the rainy season the vegetation is very scanty. The highest peak of the Graaf Reinet Mountain, the Snivbergen is about 10,000 feet above the sea level, and here the snow lies for three or four months. The highest peak of the eastern range of hills, the Wintterbergh, is 7000 feet above sea level."

#### RELATION OF CAPE FLORA TO THAT OF TROPICAL AFRICA

I should like to say a word about the relationship of the Cape flora to that of tropical Africa. It would seem that just as in Europe there was a glacial epoch, and when a warmer climate set in the cold-loving plants were pushed out to the north mountain tops, so in Africa there has been, since the present vegetable genera were differentiated, an era of universal cold, and the plants that then flowered over the whole continent have been pushed out to the Cape and up to the mountain summits of the intertropical zone. As I previously pointed out, fifty-one genera out of 102 are confined to the Cape, but of characteristically Cape genera in these three orders alone outlying representatives of twenty-seven are found high up amongst the intertropical mountains.

#### FLOWERING SEASON OF SOUTH TEMPERATE TYPES.

In conclusion, as a subject for discussion this evening, what I want to ask you as an assembly of experienced horticulturists is this, How far is it possible by cultivation to change the natural flowering time of these south temperate plants? In the three great floras of the south temperate zone there are probably not less than 25,000 plants, say 25 per cent. of the whole vegetable kingdom. Which are the plants, or if that be too comprehensive a question, which are the types of the natural orders about which we are speaking, for which we can alter the natural flowering season so as to grow them in the open air in the English climate, and which are the types for which we cannot do this? Upon what does the difference depend, and in the case for which it is possible to effect a material change, what are the means by which it can be accomplished most successfully.

[In the course of a discussion which followed the reading of this paper, Dr. Masters and Messrs. G. Paul, Watson, and G. Nicholson stated many interesting facts respecting the culture and usefulness of Cape Bulbs.]

#### CHOICE AND USEFUL PALMS.

THERE are few plants grown in our glass houses more useful than Palms. Their foliage and habit are most graceful, and they are capable of being employed in decorations which no flowering plant would fill. In the case of house decoration choice flowers are very pretty, but they lack the impressive effect of noble Palms. They are particularly appropriate in church decorations, and when confined to stoves and greenhouses they give these structures a more tropical aspect than any other plants I could name. Most of them assume large proportions in small-sized pots, or in sizes at least which are admissible on the dinner table and in rooms, and in winter especially they are excellent subjects for requirements of this kind. There are some exotic Palms which require much heat, but some of those only requiring a greenhouse temperature are as beautiful and graceful as any, while they possess the advantage of greater hardiness.

Amongst these cool-growing Palms *Seaforthia elegans* takes the lead. It grows very fast in a cool house, has a clean stem and a gracefully drooping head. The stems become 6 feet, 8 feet, and

10 feet in height, with leaves as much in extent; and then for large rooms or spacious conservatories nothing could be more effective. Another point in favour of this Palm is that it possesses a graceful habit from the first, and little plants 18 inches or 2 feet in height have all the beauty of a huge specimen. I also find the *Seaforthia* grows in a semi-dark place and bears confinement in entrance halls and rooms better than any plant I can name. We have a plant house here which is only a room with a large window in front, and the *Seaforthia* grows better in this place than any plant.

*Latania borbonica* is another fine Palm for general use. Its leaves are broader and stiffer than the preceding, but it is very handsome and easily grown. *Corypha australis* is very hardy and rather stiff in aspect, but it is exceedingly useful, especially when 3 feet or 4 feet in height. *Chamærops humilis* is perhaps regarded as the hardiest of all Palms, as it may be grown in the open during the summer season, but it develops best under glass, and when submitted to greenhouse treatment it is very pretty. *Phoenix dactylifera*, *Pritchardia filamentosa*, and *Sabal umbraculifera* are other cool house Palms of merit, but a quantity of one sort will be found as useful as a number of different species, and the one above all others which deserves to be grown in quantity is *Seaforthia elegans*. All the Palms named thrive best in a mixture of loam, sand, and charcoal. Manure is not required in the soil, but when rooted freely in small pots liquid manure, if applied once a week or so, is very beneficial.—J. M.

#### NOTES ON SOWING EARLY PEAS.

I QUITE agree with "A Kitchen Gardener" that nothing is gained by sowing Peas in November, but my experience is quite different with Peas sown under glass and transplanted to the open ground. For several years I have sown Peas on a south border in November, I have also sown some each year in January in frames, but when the weather has been too severe they have been sown in boxes and put into a vinery, and as soon as the seedlings are up, and the weather permits, they are put into a frame and hardened. When they are about 3 inches high in the boxes or frames (and the weather is favourable) they are carefully planted on a south border by the side of those sown in November and others sown in January. High ridges are drawn with the hoe on each side, about 6 or 8 inches from the row; this and sticks about a foot high, put in very thickly, help to protect them from winds, frost, and birds. I have always been fortunate in getting good weather after planting, and they have never appeared to receive any check, but they seem to take to their new quarters, and in a few days quite an improvement has been noticed in their growth.

I have never seen much difference between the November sowing and those transplanted, as to which comes into flower first; but the great difference (and which can be seen at a distance) is the evenness, strength, and crop in favour of the transplanted ones, so much so that I am this year for the first time depending entirely on those sown under glass for the first crop. These are generally a week or ten days earlier than January-sown Peas.—J. L. B., Leicester.

#### PHYSIANTHUS ALBENS.

I WAS much interested in the notice and most excellent drawing of the *Physianthus albens* which appeared on page 6 of the *Journal of Horticulture*, but I think you would like to know that the specimen sent to you by Mrs. Crowley was fruited in our conservatory here. The seed from which this plant was raised was received by me from Cannes, where it was growing on a wall in a nursery ground. I raised the plant about three years ago, but it was only after planting it out in the ground that it thrived well, and has this season grown very freely, and now has about twenty fruit still hanging, but none has ripened. I may mention that I have another plant at my house at Woodford, which flowered this summer, but no fruit has been perfected. Of the fruit here, there have only been two or three twin specimens. I may mention that as it has flowered very freely it has been greatly admired as a useful climbing plant.—COMPTON WARNER, Woodlands, Hoddesdon.

#### PYRUS JAPONICA NIVALIS.

THE Japanese Quince is represented in British gardens by several varieties, one of the best known being *P. japonica* Maulei, an extremely handsome deciduous shrub with rich scarlet flowers and unsurpassed by any other form. *P. japonica* princeps is also a fine variety, bearing large flowers, but not quite so abundantly as Maulei. There is one called *coccinea*, another *atropurpurea*, and a third *rosea*, all differing in the tint of the flowers as expressed in the names. Several white varieties have similarly been obtained, those termed *alba* and *albo-cincta* having been the largest known. An improvement upon these for snowy whiteness and wax-like substance of flower is *navalis*, of which a spray is shown in fig. 8. This is especially useful for early-flowering in pots, as it can be easily forced and had in flower by this time; and by growing a number



of plants to be placed in heat at intervals a succession may be maintained for a month or more. The flowers are usually unattended by foliage, but occasionally, as seen in the woodcut, a few leaves are produced, and these improve the appearance of the plants. All the varieties mentioned, including the double red, can be employed in a similar manner, and if the plants are kept spurred in to form compact little bushes they are very ornamental when flowering. A rich loam with a moderate proportion of old manure constitutes a suitable soil, but the plants can be assisted as the flower buds are expanding by supplies of liquid manure.

The usefulness of the Japanese Quince as a hardy flowering shrub outdoors is too well known to need any remark, but though it is frequently seen trained to walls it is too seldom treated as a bush. In the latter form it is very pretty if judiciously pruned so as to secure

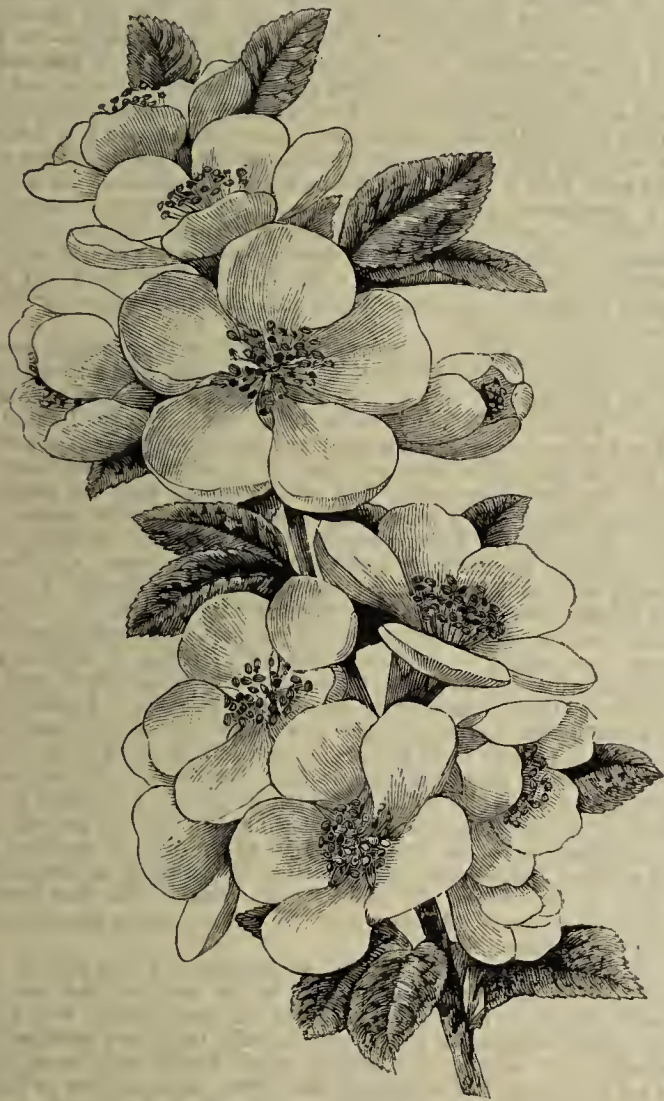


Fig. 8.—*Pyrus japonica nivalis*.

plenty of young growth each season, and dwarf bushes are admirably adapted either for the front rows of shrubberies or as isolated specimens on lawns.

### LOOKING THROUGH THE SNOW.

As I write (noon January 13th) the sun shines out, and the green grass shows again. The storm has lasted a week, and though we have not in mid-Lincoln experienced the deep drifts which surprised our more southern neighbours, the storm has been heavier and the frost more intense than any that has been registered since 1881. Yesterday the weather, as a farmer remarked, was of "all soarts," and might have been thus described, "First it blew, and then it snowed, then it thawed, and then it froze awful." Later on the thaw returned and continued all night. There was a strange darkness this morning of short duration only, which came on suddenly a few minutes before nine, after which the day again cleared and is now positively fine overhead.

Is the earth ever invisible, ever even waste and empty to the lover of Nature, and especially to the lover of flowers? It is always to the eye of imagination clothed in past, present, or coming glory. Even if hope that is seen is not hope, the hope of the horticulturist is evident always and

tangible. As the last daughter of the year dies, and this season some of our cherished Roses lingered with us exceptionally long, the fading wreath is freshened up with fragrant Violets (common Neapolitan), and already in sheltered corners pale Primroses appear glistening through the frost. The lance or rush-like foliage of some of the Daffodil, Narcissi, and Jonquil tribe are well above ground, besides pushing clumps of Crocuses and Snowdrops, and the two graceful leaves of the Anemone fulgens, patens, &c. Even under the snow we, as it were, saw them and knew they were there. Happy the man that has his own garden, his own flowers, his own ever new delight-giving hopes. I am occupied about an herbaceous border; it has long been shadowed with sepulchral Yews, tortured by Sweet Ash, a local weed as obnoxious as twitch. It is to be dug up this spring, then the last eyesore will be gone (women cannot always have things their own way at their own time), cleared of weeds and of a Berberis which overruns everything, unsuitable for a border, and already I see it gay and graceful with all that I propose and any that my more knowledgeable friends may suggest. Of course the first line is Crocus, Snowdrop, &c., Aquilegia behind Liliun candidum.

I covet double white Chinese Pæonies, perennial Lupins, blue and cream colour, great growing Poppies, with their grand glaucous green foliage. The last trio of spring or early-flowering plants I saw to perfection in the borders of the beautiful and historic parks of Oxford. What can I have beside Geums, Potentillas, Pentstemons? The last comes in a beautiful combination with Anemone japonica alba. But I do not want to enumerate, rather to accumulate, if anyone will care to suggest a small succession of easily cultivated herbaceous plants for a somewhat dry, somewhat shaded, partly exposed, partly shut in from the south.—A. M. B.

[The weather has been very variable since the above was written, inclining generally, however, to frost, which is now again severe. Slight sprinkling of snow on ground, and on Tuesday afternoon at 4.30 there were 6° frost (outside) registered by Negretti and Zambra's instrument.—A. M. B.]

### READING HERO POTATO.

I INCLINE to the belief that "Constant Reader" (page 23) has not had the true variety of Reading Hero Potato. I have grown it ever since it was first sent out, and for the last four years as our main crop. In quality and colour of flesh it is much superior to Magnum Bonum, and quite equal to the excellent late variety in cropping and keeping properties. Our soil is a light deep loam. As showing that it cannot be "Constant Reader's" heavy soil, a neighbouring gardener, whose soil is little better than clay, also grows this variety as his main crop, and has frequently expressed to me the opinion that, all points considered, Messrs. Sutton had never sent out a better variety.—W. W.

SEEING a correspondent asking in the Journal the qualities of Reading Hero Potato, I may state that five years ago I sent for half a bushel of seed to Messrs. Sutton & Sons, which gave me every satisfaction on heavy clayey loam. The variety is a first-rate cropper, very little disease, and excellent on the table. Altogether I consider the "Hero" a first-class Potato, so much so that I make it my only main crop variety, and I can keep them till the Ashleaf comes in.—JAMES BURGE.

### FARMERS AND GARDENERS.

"A THINKER'S" view of the present and future prospects of gardening and gardeners is not cheering, whilst he takes a gloomy view of those relating to agriculture. I thank him for his outspoken remarks, but I beg to differ from him in some matters both as to cause and effect.

Agriculture is declining, land is for the most part very indifferently cultivated, rents are still being reduced; some landlords have land for which they cannot find tenants, and have not the desire or capital to work it themselves, which all mean reduced incomes; but an appearance must be maintained, the stables must not suffer, nor showy men servants and domestics be reduced. Yet the hands on the farm are lessened, the garden expenses cut down, the woods and estate accounts curtailed. There is the same consuming establishment, whilst the producing is shortened, reduced labour meaning impoverished land, less produce. I need only point to one example as indicating what is meant. On one estate with which I am familiar, eight men, all married with families, were employed on the home farm, now there are four; eight men were regularly kept in the woods, now there are two, and the garden staff has fallen to four men and a boy, who have to keep order in over thirty acres of grounds and gardens. There are the same house servants, stablemen, and gamekeepers. This state of things, as your correspondent, "A Thinker," anticipated, is only making bad worse. The farmer cannot make the farm pay, the woods have ceased to be profitable, and the gardener is changed very often, three in less than three years—sure indication that bricks are expected to be made without straw. "A Thinker" rightly attributes the depression of agriculture to an extravagance which,



beginning at the landlord, descends to the farmer. It is useless seeking to maintain an appearance that the means do not warrant, inasmuch as it is had at the impoverishment of the soil, everything being taken from it, little or nothing returned in labour or fertilisers. It must fall still lower in value under such conditions, and will eventually necessitate a sale. Capital will be forthcoming to work it on new lines at a profit, and that it may now be worked to the mutual advantage of the cultivator and consumer I will give an instance. In this parish, not a hundred miles from Fleet Street, a farmer arranged with a market gardener in an adjoining parish to plant a field with Potatoes, the farmer to find the land and manure, the market gardener the seed and all labour in connection with the crop. The crop was a heavy one, both agree in its being satisfactory. The farmer had not the capital to find seed and labour, and he was deficient in the "go" of the market gardener. Why not transfer the land to the market gardener? The farmer only pays 30s. per acre, for land in an adjoining parish the market gardener pays £4, £5, and some as high as £7 per acre. The farmer keeps his phaeton, and his daughters play the piano, employs a man and boy, with odd man occasionally, and has the character of always being backward in paying, indeed figures in the county court. The market gardener only keeps a gig as principally used for business, his sons all work or manage, and his daughters never stay on his hands after they become instructed in home duties. He finds employment for as many as sixty men, women, and boys, and is renowned for his ready money transactions. "A Thinker" is right, the farmer has been ruined by prosperity, and nothing in the shape of reduced rents will save him; he needs capital to purchase stock, employ labour, and purchase fertilisers. Owing to the land hunger of the farmer in the prosperous times, medium-sized holdings were thrown to large farms. The landlord sees his error now, for he cannot draw even reduced rent with regularity, and is glad to let a tenant remain whether he attends the rent audit or not, for if he leave where are the arrears to come from, and who will take the land? Let the obviously too large farm be reasonably divided, is a ready answer. But where is the capital to come from to erect the homesteads? and if these are granted, where are the tenants? Have not the best men gone to the towns and the lands of the west? There are plenty of labourers, but with their low wages and intermittent work they are as "hard up" as any other class. What an anomalous state of things for a wealthy nation. The land will pay if well tilled, but where are those to be found who have cultural knowledge and money too? That is the crucial question.

Passing to horticultural matters, foremost comes the consideration of an over-stocked market—too many gardeners, too few situations. It has been so ever since I entered a garden forty years ago. There always were too many seeking appointments. Influence placed me in a garden; by it alone was I permitted to follow my desire to become a gardener, and I can now understand why I was treated coldly by the chief. I was to be manufactured into a gardener without a premium. I never paid one and never have taken one; indeed, I feel after thirty years' practice as head that I have yet much to learn. The premium system has much to answer for. A premium will never make a gardener, but it acts as a stimulus by which unworthy men are placed in the market and a glut created. It manufactures journeymen, a large per-centage only pass from that stage to become porters, &c., and of the remainder few give proof of the plodding industry and interest out of which the gardener is made. The worst of the premium system is that it means pushing on the giver whether he have the capacity or not in return for the monetary consideration. This is bad; still worse is the practice that obtains of a bonus being given to those having influence in procuring situations. Gardeners like those who have been under them to get good places; it says much for the gardener, it gives the place notoriety; indeed, so notorious are some that to have been at such a garden under such a man is sufficient to give a pass to the first vacancy. Surely all the best lads, all the best journeymen, and all the best foremen are not absorbed by those places that manufacture a certain number of gardeners annually. I have heard it boasted that on an average as many as nine young aspirants are placed in head situations from one noted garden every twelvemonth. This system means the ousting of other, older, and more experienced men. I blame those that take lads solely for the sake of a premium, that have a journeyman for work that a labourer could do just as well, or better, and that push foremen into head places simply because they have been under them so long as to render their staying a reproach on the credit of man and place.

What becomes of the many men changing places (and invariably succeeded by foremen from some grand place) is to me a puzzle, inasmuch as I seldom find a note of their re-appointment. They must go somewhere and live somehow. Some few get admission to nurseries, these being too full to accommodate all, even those that had been good customers. The way out of the difficulty is to aim at a higher standard and admit none to pass but the painstaking and meritorious. If an apprentice, journeyman, or even foreman shows no capacity for becoming a competent gardener, then I submit the chief should at once put in his veto instead of pushing an unworthy man into another place.

There is a method of manufacturing gardeners, which, though a prevalent one, is overlooked by "A Thinker"—viz., the many lads taken into gardens at the command of the proprietors—the sons of poor tenants, smart it may be at school and of service in the choir. The parents are poor, have a large family—it may be the breadwinner is taken away—something prompts their being given employment in gardens. The gardener must acquiesce, the progress of the pupils under such patronage is rapid, and they are pushed ahead. Gardening ought to be made a science, public examinations, certificates of competency doing away with the passes now granted upon favour as often, if not oftener, than upon the sound principles of industrial energy and skill in the profession.

I now come to the conversion of private gardens into "market gardens." The proprietor, through the depression in agriculture, the reduction of rents, the non-payment of rent, and land unlet, cannot maintain the garden in anything like the same order as formerly, necessitating a reduction of hands, wages, and general expense. This is a general case. The place must go down; instead of being highly cultivated it becomes neglected, and is neither a source of pleasure or profit to the proprietor and no credit to the gardener, even if the old gardener remain. Tell us, "Thinker," why this garden should not have its assessment reduced? Its value is less, it is not worth half as much to the proprietor as it was when he was able to maintain it in a high state of cultivation. Gardeners, if wise, will suggest to an employer of this kind maintaining the garden—i.e., the profitable part, in a state of cultivation by selling the produce, not now weeded through the reduction of the establishment. The gardener will do this through sheer necessity. He will seek to maintain his position for the benefit of himself and family, the men under him will be kept together, and the tradesmen of the locality and the public at large will be benefited by the produce, which comes as a god-send in cheapening food, especially as wages are low and employment scarce. The market gardeners in the locality may grumble—the squire turned market gardener; he pays no rent, and his land is assessed at a much lower rate than ours; to which the answer is clear—the land is his, the land with the buildings upon it are assessed at the value the assessor puts upon it, even the lawn and shrubberies are taxed, and it is difficult to tell in what the grievance consists; besides, whether the landowner sells or not, the same duty is levied on those he keeps as gardeners. It is folly to write of gentlemen's gardens not being rated. If "A Thinker" should have better luck than most of the craft, cleans his spade, retires, and adds a greenhouse to his villa, how long does he suppose it will be before the assessor pays him a visit? Try it, "Mr. Thinker," and then tell us the difference between the assessment of a glass structure erected for pleasure and that of one for profit.

I cannot see any difference between a landlord making the best use of his land by selling the produce himself or letting the land and allowing others to sell the produce they obtain. "Ah, I see how it is," "A Thinker" may say, "you sell." I do, and not a single complaint have I heard from a market gardener since I commenced, and there are those that have hundreds of acres near under similar crops. It is not market gardeners who complain, but the nurserymen. The selling means that the garden has become a producing not a consuming establishment, which makes a difference. Who gains? The owner—rent for the land, interest for the capital invested; the gardener maintains his position—nay, a higher one, from being more confidential; and the community at large. A general opinion obtains that landlords take to marketing with a view to profit. This may be right, but I do not know of an instance, and I could give several instances where selling is practised that not a farthing of profit is made. The proprietor finding the garden too large—more flowers, fruit, and vegetables produced than he needs—and directs their disposal, and considerably allows a commission to the gardener as a reward for the increased labour entailed. It is a shame to let the produce waste. Now, as giving it away would only prevent those receiving it from purchasing, in what way are they damaged by its sale? The public get as good, if not better, produce and more of it, therefore the selling business is for the general good. There is another aspect in which to look at the sale of produce from private gardens. Where selling is practised the garden is maintained in a high state of cultivation. It will not pay without this and carefully selected seeds or plants. Inferior will not sell, at least it does not pay—not even for carriage.

If "A Thinker" asks why I sell, my answer is, I was told to do so. We had produce that went to the pigs by the cartload, and was given away until we got no thanks. Now, mark, the same ground would not—did not—grow sufficient for the household only two years previously; it was a question of hedging and buying, which straits some so-called gardeners are ever being put to through their own incompetency or inattention. Cultivation alone gave the increased yield, and my employer said, Sell it and employ the money in improvements. I tell you this is the most interesting part I have ever had in gardening. The greengrocers complained before they were hurt, for we kept clear of them by sending to Covent Garden Market. Covent Garden drew largely, so that out of some £200 worth of produce that would otherwise have been wasted I had £150 more to spend on the garden, for one-fourth went in expenses.

Does "A Thinker" suppose that when the working men have allotments that they will consume the whole of the produce? I think not, and they will have as much right to sell as the market gardener or anybody else. More growers, better cultivated land, increased produce, better fed and clad people, is the dream of many besides—UTILITARIAN.

AMONG the many interesting and instructive "thoughts" which have proceeded from "Thinker's" mind, and recorded in the pages of this Journal, the remarks made on the relative positions of farmers and gardeners, and the way they face adverse times, seem to the writer to be pre-eminently interesting, and true market gardeners are heavily handicapped by having to face the competition of so many noblemen and gentlemen whose gardeners are at the present time engaged in growing produce for sale. That we have reached the lowest ebb in regard to the reduction in the value of such products of the farmer as Wheat and other cereals does not appear to the writer, and it is almost certain that still more reduction in the prices of these products will have to be submitted to by the farmers of the future. That the price of beef and mutton will fall much lower does not seem so probable; indeed, it may almost be prophesied that such will not be the case, at least if trade generally attains to anything like prosperity.



The boundless stores of grain possessed by other countries enable them to offer for our consumption enormous supplies, and these will doubtless go on increasing, as we read of hundreds of millions of acres suitable for the production of Wheat being as yet untouched. No doubt in time all these virgin lands will be made to bear in abundance, and a due proportion of the produce will be available for Britain's supply. Therefore we may assume that no return to high prices for grain will be in store for the farmers of the future.

But we know that millions of pounds sterling leave this country annually in order that we may have a sufficient supply of eggs, butter, and cheese. Could we not produce more of these here to successfully compete with the importations from other lands? Is there not a large field open for enterprise in supplying fowls in large numbers and good quality at moderate prices to our teeming population?

The farmers must adapt themselves more to the times. To continue growing exactly the same crops as they did when our Colonies were only a dream; when America was just beginning to develop its vast resources; when transport was slow and attended with more danger and difficulty than in these days of railways and of huge floating storehouses, which, impelled at great speed by the wondrous power of steam, bear to our shores in a short space of time the products of lands which not so long ago were unknown or only described in a partial way in some adventurous traveller's book of exploits. Now we have the vast Continent of America at our doors and other equally productive quarters of the globe within easy reach; so that the farmer must face this ever-increasing competition.

Greater freedom in cropping, unrestricted leases, compensation on an equitable basis for unexhausted improvements, a more perfect understanding between landlord and tenant—in fact, the comprehension of the truth that their interests are identical, and let it also be added a more enterprising spirit on the part of many of our farmers; all these must be brought to bear on the farming of the future. Science must also receive more attention, and mere rule of thumb must not be blindly practised. Landlords have evil times to face at present. In many cases their incomes have been sadly reduced, but they must also adapt themselves to the times, and "cut according to their cloth."

And what of gardeners, market gardeners, and fruit and flower growers who are facing competition from abroad too? Regarding gentlemen's gardeners, there can be no doubt that they in many cases are feeling the effects of the hard times in such ways as reduction of labour and general curtailment of expenses, but in most cases they have not been called upon to accept a lower salary themselves, and this is something to be thankful for; but many of them have been turned into market gardeners, and send the produce of their labours to compete with that of men who are "making a living" by growing for market.

The latter have not only foreign competition to face, but also the home competition of the nature referred to. Certainly one of the reforms of the future should be a readjustment of the rating of gentlemen's hothouses and gardens, where such are employed in growing for market. Let justice be done, and no one need grumble. The duke or lord has a perfect right to grow for market if he likes, and when compelled to do so by hard times no one would despise him for so doing; at the same time taxation should be laid on him in equal proportion at least to the way market gardeners have to bear it. Those of our nobility who compete with market gardeners, not from actual necessity, we will not venture to discuss here.

The same conclusion must be arrived at in regard to market gardening as in regard to farming. We must "bow to the inevitable," must "put our best foot foremost," meet competition from whatever quarter it comes by increased effort, by endeavouring to grow such crops as experience teaches us are the most remunerative, and also by using every means to produce the very best quality of whatever is being grown. Some may go to the wall in the struggle, such is always happening; but let us hope that the majority will be able to "rub along," and that an increased supply will, by reason of its excellence, increase the demand, so that a due reward may be found attending the labours of those who, having found many things against them, resolutely set themselves to overcome all difficulties.

Horticulture generally, whether in connection with market produce, private or public supply, or private gratification for the love of the beautiful, seems passing through a trying time; but let us again hope that the result of all its trials may be an increased hold on the people in regard not only to the supply of their wants, but also the gratification of those feelings of admiration and pleasure which are awakened in the minds of all who are susceptible of being touched by the beauties of Nature, and who can feel elevated and refined by the sight of lovely flowers, splendid plants, and noble fruits all appealing to the higher instincts of mankind when viewed aright.—J. T. S.

#### GROS COLMAN VINE.

In answer to "A. L. G.," I have to say that if he will look again at my note on this subject I think he will find no difficulty in separating the facts from the theory. To ask me if I am "sure that it was potash alone that the Vines required" is rather too much. I have said that the Vines exhibited certain unfavourable symptoms, and that those symptoms disappeared gradually and completely on the Vines receiving repeated applications of a liquid manure which contained a large amount of potash. I also gave facts from which it might be inferred that the soil was not likely to be deficient in supplying nitrogen or phosphorus. That is as much as I

can say now, excepting that the liquid manure used was composed of one part of cow urine to about twenty parts of water.

My experience with "potassium salts" is too limited for me to feel justified in giving directions for their use. Possibly "Lathyrus," who omitted to state the form of potash he finds beneficial to fruits and vegetables in general, can supply the requisite details.

The last-named writer is perhaps justified in refusing to accept my conclusions in face of his own experience; but on the other hand I have succeeded in making Gros Colman retain its foliage in a healthy condition without shade, and he has not, although apparently he has grown the Grape as successfully as I have. Is the potash he uses in such a form as can be readily assimilated by the plants? "Lathyrus" says, "It is difficult to see why Gros Colman should need food so entirely different from others." It is just as difficult to understand why it should require shade more than others. I do not say that it requires food different from others, but that it may require more than some other varieties; and when we consider that there is probably a greater weight taken from it annually in shape of foliage and possibly, too, in fruit than from other varieties, it follows that the supplies in the soil would be sooner exhausted. I am now writing without a leaf before me, but I should say that a good leaf of Gros Colman, such as will stand the sun, is double the thickness of any other variety that is now usually grown in houses.—WM. TAYLOR.



THE annual meeting of the ROYAL HORTICULTURAL SOCIETY will be held at South Kensington on February 9th, when the ordinary business will be transacted—namely, reading the annual report, the appointment of officers for the year, and the election of gentlemen to fill vacancies on the Council. The following are nominated as officers:—President, Sir Trevor Lawrence, Bart., M.P.; Treasurer, William Houghton; Secretary, William Lee (Downside); Auditors, John Lee, James F. West, and W. Richards. The vacating members of the Council are G. T. Clark, F. Du Cane Godman, F.R.S., and Sir P. Cunliffe Owen, K.C.M., G.C.B., C.I.E., and the following are recommended to fill these vacancies:—Sydney Courtauld, A. B. Mitford, C.B., and Baron Schröder.

— WE are informed that the dinner of the ROYAL HORTICULTURAL SOCIETY is fixed for the 9th of February, and will take place in the Albion Hotel, Aldersgate Street.

— THE monthly dinner and conversazione of the HORTICULTURAL CLUB was held on Tuesday last at the Club Rooms, 1, Henrietta Street, Strand. Amongst those present were Dr. Hogg, Dr. Masters, Rev. F. H. Gall, Mr. J. G. Baker (Kew), Messrs. George Paul, Wheatstone, Bull, Upcott, Gill, Lindsell, Nicholson, Watson, Dewar, &c., &c. The discussion was opened by an interesting paper on Cape Bulbs, by Mr. J. G. Baker (Kew), which is published in another column, and was continued by Dr. Masters, Messrs. Watson, Nicholson, G. Paul, &c., and many interesting facts bearing on their horticultural aspect were elicited.

— MESSRS. SUTTON & SONS, Reading, offer a number of special prizes at the Show of the Royal Horticultural on the following dates:—May 25th, six prizes for Cucumbers and Melons. June 22nd, three prizes for Melons. July 27th, ten prizes for Cauliflowers, Peas, and Cabbages. September 7th and 8th, six prizes for Carrots and Tomatoes. October 12th and 13th, twelve prizes for vegetables and Onions. October 26th and 27th, twenty-six prizes for Potatoes, Celery, Beet, Carrots, Leeks, and Parsnips. These prizes vary in value from 42s. to 5s. Prizes are also offered at Oxford on July 30th, and at Reading on June 1st and August 26th. Particulars respecting the varieties to be shown on each occasion can be obtained from Messrs. Sutton & Sons.

— WE are requested to insert the following relative to ROYAL HONOURS TO THE SEED TRADE. "Messrs. James Carter & Co., who have supplied their celebrated Grass Seeds and other specialities to H.M. the Queen for nearly twenty years, have received the honour of a Royal Warrant appointing them upon Her Majesty's service as seedsmen. Messrs. Carter have for many years held Special Royal Warrants as seedsmen to H.R.H. the Prince of Wales, H.R.H. the Duke of Connaught H.I.M. the King of Italy, and H.I.M. the King of Portugal."

— WE are desired to state that MESSRS. WRIGHT'S BOILER CO., of Airdrie, N.B., have been awarded medals for their "Endless Flame



Impact" Hot-water Boilers at both London (Alexandra Palace) and "Inventions" International Exhibitions.

— THE annual general meeting of the ROYAL METEOROLOGICAL SOCIETY will be held at 25, Great George Street, Westminster, on Wednesday, the 20th inst., at 7 P.M., when the report of the Council will be read, the election of officers and Council for the ensuing year will take place, and the President (Mr. R. H. Scott, F.R.S.) will deliver his address.

— WE have received a copy of the fifth edition Mr. J. R. Pearson's "VINE CULTURE UNDER GLASS," which has been revised and edited by Mr. C. E. Pearson, and is published by Messrs. Thos. Forman & Sons, Sherwood Street, Nottingham. It is a concise, practical little work, and is a useful guide for amateurs.

— MR. SHIRLEY HIBBERD'S "GARDEN ORACLE" FOR 1886 is just issued (4, Ave Maria Lane, Paternoster Row) and, as usual, contains a variety of useful information, in addition to the ordinary calendrical matter. Lists of new plants, flowers, fruits, and vegetables are given, with selections of useful varieties and hints on their cultivation. A valuable chapter on the cultivation of hardy herbaceous and alpine plants with full lists of varieties is included in this edition, and constitutes a very useful portion of the work. Those interested in political matters will appreciate a list of the members of the new Parliament embodied in this edition.

— WE are informed that the READING HORTICULTURAL SOCIETY will hold their Spring Show on June 1st, and the Summer Show on August 26th in the Forbury Gardens.

— MR. JOSEPH MALLENDER sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, Worksop, Notts, for December, 1885. Mean temperature of month 37.4°; maximum on the 16th, 53.7°; minimum on the 8th, 13.2°; maximum in the sun on the 31st, 84.8°; minimum on the grass on the 11th, 10.4°. Warmest days 1st and the 3rd; coldest day the 8th. Mean temperature of the air at 9 A.M., 36.8°. Mean temperature of soil 1 foot deep, 38.6°. Nights below 32° in shade, thirteen; on the grass, twenty-four. Total rainfall 0.81 inch; maximum fall in twenty-four hours on the 30th, 0.20 inches; rain fell on thirteen days. Average velocity of wind 11.4 miles per hour; velocity exceeded 400 miles on eight days, fell short of 100 miles on three days. Sunshine.—Total duration in month twenty-eight hours, or 12 per cent. of possible duration. Maximum duration in one day, on the 10th, 5.1 hours. We had sixteen sunless days. Dry and rather cold month. The minimum temperature was rather low, but not exceptionally so. The rainfall is smaller than in any of the previous ten Decembers. Very little snow fell. The wind was very light, except during the last few days.

— THE METEOROLOGICAL SUMMARY FOR THE YEAR 1885 is as follows, from the same correspondent:—Mean temperature of the year, 46.8°. Maximum on the 25th July, 86.0°. Minimum on the 8th December, 13.2°. Maximum in sun on the 26th July, 133.7°. Minimum on the grass on the 11th December, 10.4°. Warmest day the 26th July, mean temperature 70.5°. Coldest day the 8th December, mean temperature 23.6°. Mean temperature of the air at 9 A.M. 47.3. Mean temperature of the soil 1 foot deep, 47.9°. Nights below 32° in shade seventy-six; on grass, 133. Total rainfall 24.70 inches. Maximum fall in twenty-four hours on the 23rd October, 1.67. Rain fell on 181 days. Snow fell on twelve days. Sunshine, total duration in year 1119 hours, or 25 per cent. of possible duration. Maximum duration in one day, on the 27th June, 14.0 hours, or 84 per cent. of possible duration. We had 113 sunless days. The year may be described as uniformly cold, of average rainfall, and very deficient in sunshine. February was the only month with temperature above the average. The number of frosty nights is above the average, but has been exceeded. Sunshine has been very deficient throughout the year; the only really bright month was September. The number of sunless days is twenty-eight more than in any previous year. Northerly winds have been rather more frequent than usual.

— AN American paper states that PEACH TREES often attain a much greater age and size than is generally supposed. In his address before the Pennsylvania Horticultural Society, President Stitzel stated that he had known trees in Maryland from sixty to eighty years old still in good bearing condition, while one, supposed to be nearly one hundred years old, was 2 feet in diameter near the ground, and was still productive.

Cases are related where Peach orchards in grass land which had ceased to bear and were apparently worthless had been restored to vigour and productiveness by cultivating and manuring the soil.

— AN extensive MARKET GARDEN in SOUTH WALES is thus described in the *Illustrated London News*: "Llysonen Gardens, seven miles from Carmarthen, are the property of Captain Mansfield, R.A., where he pursues the art of floriculture successfully. He has an area of 200,000 feet of glass, with a proportionately large staff of gardeners, painters, glaziers, masons, carpenters, and firemen, many of whom reside in very pretty cottages which the captain has built for his people. The mechanical apparatus for supplying water and heat are the most perfect that could be invented; and the coal used is the anthracite coal, which gives tremendous heat. There are no less than six miles of hot-water piping passing through the numerous stove and plant houses. Thousands of Roses in pots are already in bud. A house is devoted to Liliums, another to Orchids, while others are individually devoted to Geraniums, Pelargoniums, Cinerarias, and sweet-scented foliage plants. There are 100,000 pots of Lilies of the Valley for forcing. The Camellias are magnificent, and a house full of Maidenhair Ferns is a sight not easily to be forgotten. The forcing houses were already rich in blossom, and thus eighteen large houses were devoted to flowers. In the Peach house 10,000 pots of Strawberries are forced each year. There are many hands employed in preparing and packing the flowers for the London market."

— WRITING to the *American Florist*, Mr. Peter Henderson gives the following account of a CRIMSON CALLA, but it must not be mistaken for a variety of *Richardia*:—"I give the story of a crimson Calla (*Arum palæstinum*) of which I became the fortunate possessor a few years ago. A lady called on Messrs. Young & Elliott, seedsmen of New York, and stated that she had a crimson Calla in bloom, and she wanted to sell it to them for 100 dollars. Mr. Elliott suggested that she bring it down to one of his auction sales and let it be sold there. This she agreed to do, and down it came in full bloom, crimson sure enough. Mr. Elliott expended a wonderful deal of eloquence in trying to get someone to bid 100 dollars for it, but was obliged to take my first bid of 100 cents, which was gradually run up to 1000 cents, and I became the possessor of the crimson Calla. I then secured all the remaining stock from the lady consisting of about a dozen small plants, and grew it until I obtained over 100 plants, but in some way by running it against the grain I lost the whole stock of it. I do not know to-day if there is a plant of the crimson Calla in the country, although if it could be grown easily it would be a most interesting plant. It is of a rich crimson maroon, nearly as large as the flower of the dwarf Calla, and, unlike most other plants of the *Arum* class, it has a rich fragrance, somewhat similar to the Violet."

— THE Immigration Office, Sydney, New South Wales, periodically issues a sheet containing miscellaneous information relating to the colony, and from one just received we extract the following paragraph respecting NEW SOUTH WALES TIMBERS. "Probably no country in the world possesses finer or more durable hardwoods than New South Wales. Her Pines and Cedars, valuable though some of them may be, yield the palm to those of other lands; but her Ironbark and Blackbutts rank, for durability and strength, second to none on the globe. Singularly enough, all the principal hardwoods used in the colony are myrtaceous trees—that is, members of the great Myrtle family, which, according to Professor Balfour, is divided into five tribes, containing seventy-five known genera and upwards of 1800 species. Members of this great family are natives chiefly of warm countries, as South America and the East Indies, although many are found in more temperate regions. Some of the genera, such as the Eucalypts, are peculiar to Australia, although they have been successfully transplanted in Europe and the East, and in the Campagna at Rome, on the borders of Portugal—where they have been planted by the vigneron for the making of casks; and even on many of the hill stations of the Punjab and Madras the wandering Australian may recognise the tall rough stem, leek-green leaves, and strong perfume of the sylvan denizens of the sunny south. Eucalypts, which constitute at least three-fourths of New South Wales timber-producing trees, furnish us with the bulk of colonial hardwoods. Ironbark, Black Butt, Blue-gum, Stringy-bark, Swamp Mahogany, Tallow-wood, and Yarrah all belong to the same remarkable genus, although they differ from one another in many ways, and in none more so than in their rate of growth, the Blue-gums and Blackbutts being very rapid growers, while the Ironbark and Box take a very much longer time to mature. The remainder of hardwoods are principally Angophoras, or "Apple trees," most of which are subject



to "gum-veins;" Tee trees, *Tristanias*, and *Syncarpias*, better known as Turpentine trees, but all members of the Myrtle family, and all growing in the open forest, and very rarely in the bush or the scrub."

### PEAS FOR PROFIT AND EXHIBITION.

AS we have entered upon the new year, which I hope will be a happy and prosperous one for all, especially for all gardeners, and being an amateur gardener myself, I thought as the season is fast approaching for sowing seeds a few remarks upon Peas for profit and exhibition would be useful to some young gardeners.

The first thing I would recommend is giving your seed orders at once to facilitate the seedman's work. I advise obtaining sufficient seeds for a small sowing of the following varieties:—William the First, Laxton's Earliest of all, Laxton's Evolution, Laxton's Charming (a new one this year, I think the best Mr. Laxton ever sent out), Carter's Telephone, Carter's Stratagem, Carter's Pride of the Market (three very good Peas), Webb's Wordsley Wonder, and Culverwell's Telegraph. I think the above-named varieties would be very hard to be surpassed either for profit or exhibition.

The next work is to prepare the trenches, as I have found from practice that it is almost impossible to grow first-class Peas either for exhibition or culinary use unless a trench is made, say 12 inches wide and about the same depth, place the soil that comes out of the trenches upon the east or north side of the trench, and it will then shade the Peas from cold cutting winds that frequently otherwise destroy good crops of Peas. Afterwards fill the trench with rich manure; either old or new will do, as I have tried both and have sometimes thought I have grown the best Peas from the new manure, but the latter comes from the piggeries, and therefore is very good. Let the manure be trodden down in the trenches until it is reduced to about 9 inches in depth; then place in the trench about 1½ inch of soil, a good dusting of unslacked lime that will keep the worms and slugs from destroying the seed. Sow the seed at this time of the year, cover the seed with about 1 inch of soil as fine as it can be made, adding to that if possible about half an inch deep of coarse ashes or small cinders. This I find is a great protection to the plants from slugs and other enemies. I always keep some fine unslacked lime by me, and if slugs attack the plants I dust them very freely with the lime; in fact, I find Peas are very much better if dusted with lime about every fourteen days until they have reached about half their growth.—HY. MARRIOTT.

[Our correspondent, who is well known as one of the most successful cultivators of Peas, obligingly offers to send further notes on growing them to perfection and staging pods for exhibition. We shall readily publish a communication on this subject.]

### ROSE MILDEW—NOTES ON GYPSUM.

IN reply to Mr. Kruse, we gave nearly all our Roses a dressing of gypsum on March 4th, 1885; but as we had so little rain during the summer I do not think it was sufficiently washed into the ground to reach the roots to give it a fair trial, but we certainly had less mildew on our Roses last year than usual. It would have been better put on in the autumn, so that the winter rains could have washed it well in and dissolved it, as I think it requires a quantity of water to dissolve it, so that I expect to see a greater improvement from it next summer than the last; more especially as I think it is what our soil requires, for it is rather light and it has been heavily manured for several years.

I also tried it on Onions, Peas, Broad Beans, Shallots, and Strawberries without perceiving any improvement, although a piece was marked off in the centre of each plot and carefully preserved. I also sowed some in the drills with the late Peas, hoping it might prevent mildew on them; but it seemed to make no difference whatever, although the Peas were kept well watered. The only improvement in vegetables was on a piece of Cauliflower (autumn-sown), half the piece being sown with gypsum, the leaves of the plants on which grew much larger than the others, and most of the heads came in before the others, but as they were wanted in the house when quite small no fair comparison could be made.

Now if gypsum will prevent mildew on Roses, why should it not on Peas? And if gypsum contains 30 per cent. of lime and 40 per cent. of sulphuric acid, and the rest water, which of the two will prevent mildew, or is it both? Either of these separate we could get at much less cost than we could gypsum, as ours had to travel about 150 miles.—J. L. B., Leicester.

### THE PAMPAS GRASS.

THERE is no more pretty or useful plant in our gardens than the Pampas Grass, but unfortunately, as a rule, it is confined to large gardens and parks, few amateurs and villa gardeners ever thinking of introducing it. Why this should be so it is difficult to understand. That it looks well, and is highly suited for the embellishment of large gardens, no one can deny; but that it ornaments small gardens to an equal extent is as certain, and I am greatly in favour of its being more generally planted.

Isolated specimens are very effective, and when upon green turf they are more graceful than any bush or tree. They are also attractive in corners, or amongst shrubs in groups, or as boundary bands. The foliage is sweeping and graceful, and in early autumn, when the magnificent feathery plumes appear, they become more and more conspicuous. These heads are highly ornamental on the plants, and when cut and dried they

are extremely useful for house and church decoration in the winter time. We use them freely in large flower vases, and the other day we put some scores of them into the church. They were effective in the extreme. The plan of cutting the heads required for purposes of this kind before they quite expand from the sheath which envelopes them at first is a good one to a certain extent, as the heads turn out white, but they also come smaller than when allowed to develop fully. For this reason we do not cut all we require in the young state, but allow many to grow to the fullest extent, then they are cut before beginning to wither in any way, and they are blanched to become almost as white as milk by confining them in an air-tight place and burning sulphur with them. It is astonishing how confinement with sulphur fumes whitens them, and if they are held before a strong fire afterwards, or at any time when they are damp, they will expand like a damp feather when exposed to the influence of a quick drying fire. The foreign Pampas heads, which are chiefly sold in shops, are fine specimens as a rule, and their size and colour surpass those generally grown in this country; but good cultivation will produce heads as fine as any which it is possible to buy, and anyone who puts the plants into rich deep soil need never have to buy plumes. The present is the best of all times to plant. They are very hardy, and may be introduced in all quarters. They thrive well inland or near the sea, in exposure or shelter, in smoke or the purest atmosphere, and I never knew them to fail and miss a season in producing their showy plumes. Some are inclined to cut away some of the leaves from the plants during the winter and allow new growths to appear in spring, but this is a great mistake, indeed I once knew a fine plant ruined by this, and the best of all ways of treating established plants in winter and at all times is to leave them alone.—J. M.

### FORESTRY.

MR. JOHN R. JACKSON contributes a paper to *Nature* upon this subject with some interesting notes worthy of reproduction.

The report of the proceedings of the Select Committee on Forestry which sat during the past summer does not, perhaps, throw any more light on the condition of forestry in this country than was possessed before the appointment of the Committee, for the substance of the evidence given is for the most part to be found in the various works and reports on forestry that have appeared from time to time during the past few years; nevertheless the evidence of such men so well versed in forest conservancy, especially with regard to India, as Dr. Cleghorn, Col. Michael, Col. Pearson, and Mr. W. G. Pedder is of much value, as it brings together in a collected form information that has hitherto been much scattered.

The subject of forest produce is one that is but little understood or even thought of by people in general. It is supposed by most people to relate only to the supply of timber, which indeed of itself is of very great importance; but when we consider the other products—such as gums, resins, oils, fibres, and such like—the enormous money value becomes more apparent, as well as the great importance of the forests as sources of many absolute necessities of life. The evidence of Col. Michael fully illustrates this, and is especially valuable from this point of view. Taking the subject of Indian timbers alone, the value of teak was fully set forth when it was shown to be unequalled for the backing of ironclads and for ship-building generally, as offering the greatest resistance of any known woods. Questioned as to whether teak was capable of being brought into this country as a commercial article at a remunerative profit, Col. Michael replied that, judging from the price realised for some logs sold at the Forestry Exhibition at Edinburgh and from other information obtained, no doubt existed that the trade in teak might become a very remunerative one. It was shown further that in 1883 £647,000 worth of teak was imported into England; but Col. Michael also touched upon what, if put upon a proper footing, might equally, or perhaps more so, become a source of revenue to India and a boon to this country—namely, the introduction of the more ornamental woods for cabinet purposes. There is, of course, always a steady demand for British-grown timbers such as oak, elm, ash, maple, &c., but these have to be supplemented by foreign woods of a more ornamental character, and of these, mahogany, rosewood, ebony, satinwood, and such like are the best known. From amongst Indian timber trees a long list might be made of woods which are now almost unknown out of their native country—such, for instance, as the East Indian Cedar (*Cedrela toona*), which is a reddish-coloured wood with a splendid wavy or feathery figure; the tree is also found in Australia, where the wood is highly valued; the Padouk (*Pterocarpus indicus*), the deep-red-coloured wood of which attracted so much attention at the Edinburgh Exhibition last year; the Malabar Kino Tree (*Pterocarpus marsupium*), also a finely marked deep-red wood, several species of *Terminalia*, durable woods of a brown colour with darker brown markings. Many others might be mentioned, but the most beautiful of all the Indian woods for its ornamental character is the Chittagong wood (*Chick-rassia tabularis*). This is of a brown colour, with transverse lighter silvery-brown wavy markings, which impart to it a varying depth of light and shade, which, when polished, imparts a peculiar and charming lustre. All these woods take a high polish, and would be invaluable for cabinet work. Fine specimens of these and many others are in the collection of Indian timbers exhibited in the No. 3 Museum at Kew.

On the question as to the durability of the Scotch Fir (*Pinus sylvestris*) Col. Pearson gave an opinion which is worth quoting. He says:—"I think myself that as the value of the foreign imported timber increases as it must do as the quantity diminishes, people will come to appreciate more the Scotch Fir, because I know many barns which have been



boarded with Scotch Fir for twenty years, and which are standing perfectly well; but it is convenient to get the imported boards ready sawn out, and where the people can get them cheap they do not pay attention to the Scotch and home-grown timber. But, speaking for myself, I should say that Scotch Fir is a perfectly good wood as long as it is sufficiently mature, and I think, as foreign wood becomes dearer, as it will in a few years, English timber and Scotch timber will become of a value which it has not now."

On the general subject of the proposed Forest School Col. Pearson expressed himself in favour of a Chair of Forestry at the Edinburgh University, but he further stated that he had no actual faith in lectures in the school unless illustrated by practical instruction. "If," he says, "you tell a man in the lecture-room that such and such consequences will take place, and do not show him the consequences on the spot, he does not believe anything about it; it goes in at one ear and out at the other; he will think it all nonsense; but if you want to impress your teaching upon him, you must take him out into the forests and show him the operations of Nature." Regarding the extent or scope of the School, Mr. Thielton Dyer, in reply to Sir Edmund Lechmere whether he would not make the School of Forestry applicable to India and the Colonies as well as to our own country, said, "I should like to get all the fish possible into the net, and if we had such a school to make it as useful as possible, I think it is surprising, considering how large is the interest of the English race in forestry, that except in India we have taken no kind of active interest in the subject: although we own more forests in the world than any other race, we are at present, except in the most piecemeal fashion, absolutely washing our hands of the whole business." Mr. Dyer, in his evidence, further pointed out by way of illustration a few of what are usually called the minor industries of forest produce, which in the aggregate become of considerable national importance.

It is to be regretted that the Committee was not nominated at an earlier period of the session. The first sitting was on July 14th, and at the two subsequent sittings on July 21st and 24th, witnesses only were examined. The report of the Committee refers to the impossibility of concluding their investigations during the Session, and "recommends that a Committee on the same subject should be appointed in the next Session of Parliament."

### CYPRIPEDIUM INSIGNE.

THIS is a favourite Orchid here now. It flowers unfailingly at this season, and as the plants are very hardy and the blooms substantial it is very useful. Our plants have not been potted for two years. The largest one is in a 10-inch pot. The leaves of this one droop over and almost hide the pot, and it is now bearing forty-three blooms. Another plant in an 8-inch pot had twenty-four flowers; this one was placed in a room four weeks ago, it is there now, and the blooms are as fresh to-day as they were on the 26th of November. This, I think, is one of the greatest recommendations a plant could possess. When the flowers are cut they are equally useful, as they will remain fresh for a fortnight at least in a glass of water. Some time ago *C. insigne* was grown in a warm house, but the excellent plants I saw in Mr. Cypher's nursery at Cheltenham two years ago induced me to alter the treatment for them. These were allowed to remain in a cold frame from May until the end of September, fully exposed to the sun and liberally ventilated. It is simple and easy, and a plan which any amateur with a cool frame and a small greenhouse could adopt with success.—J. MUIR, *Margam*.

### PLANTS CERTIFICATED IN 1885.

MESSRS. H. CANNELL & SONS.

THE Home of Flowers has long been a prolific source of novelties, and every year some of sterling merit are added to the lists of popular flowering plants. Whenever a variety of great promise is obtained it is extensively propagated, and a large stock is quickly secured to supply the numerous demands, and not unfrequently visitors to Swanley may see a whole house devoted to one such novelty. Owing, however, to the number of specialties at the nursery, there is a surprising succession of interesting floral displays throughout the year. At one time we find *Pelargoniums* predominating, at another *Primulas* seem to occupy the greater space, or *Cyclamens* and *Fuchsias* are in the majority. Later we see the brilliant *Tuberous Begonias* in their thousands, and conclude the season with a multitude of *Chrysanthemums*. These are a few of the principal features of the glass department; to them might be added many others, such as *Verbenas*, *Bouvardias*, and *Petunias*, to which much space is devoted. Then, too, the spring and summer months bring a grand succession of outdoor flowers, *Roses*, *Dahlias*, *Pansies*, *Violets*, *Pentstemons*, and all the best hardy herbaceous plants, every square yard of ground being occupied with garden treasures innumerable. With such resources at command, and a widely extended correspondence, it can be readily understood that Messrs. Cannell & Sons enjoy especial facilities for obtaining novelties, of which they fully avail themselves.

Reviewing those which have received honorary awards at the various metropolitan shows this year, the following deserve particular notice for their distinctness and beauty. *Tuberous Begonias* have been increased by eight fine varieties, of which several are doubles of great merit. Of these may be mentioned *Antoinette Guerin*, white, neatly formed; *Blanche Duval*, creamy white, with a pink tinge before expanding; *Gabrielle Legros*, pale yellow, delicate and beautiful, of excellent form and substance; *Marchioness of Lothian*, creamy white, the blooms large, full, and drooping, well adapted for baskets; *Picotee*, a bright rosy-tinted

variety, with a clear white edging to the rounded petals; and *Louis Boucharlet*, scarlet, free and handsome. The single varieties include the following—*Earl of Bessborough*, a dwarf free variety, with bronze yellow flowers; and *King of Crimson*, crimson scarlet, very large rounded flower, bold and handsome.

The *Swanley Chrysanthemums* have been referred to at some length recently, and it is only necessary to mention the names of the principal varieties. The *Japanese Beauty* of *Swanley* is one of the best that have been certificated this year; it is of fine substance and a novel shade of colour—a soft rosy lilac. It appears likely to make a good exhibition variety, and we may expect to see it at some of the leading shows next November. The *Japanese Anemone* variety *Catherine-wheel*—white with a sulphur centre—and the single *Queen of the Yellows* are also notable varieties from the same establishment.

A trio of good *Dahlias* gained certificates for Messrs. H. Cannell and Sons in the past year. Two of these are single varieties—namely, *Eclipse*, rich deep scarlet yellowish at the base of the florets, which are round, and the general outline is good; and *Faust*, of a peculiar bright red tint, very distinct, and, like the preceding, of excellent form. The third variety is *Germania Nova*, a decorative variety, with compact blooms, formed of numerous acute closely packed bright rose florets. A pair of *Verbenas*, *Dr. Feyerlin* and *Purity*, the former rich purplish crimson and the latter pure white—have been certificated, together with a superb single white *Primula* named *White Perfection*; the handsome pure white *Carnation*, *The Governor*; and the old but useful *Centropogon Lucyanus*.

It has already been remarked that there is a succession of floral exhibitions at *Swanley* that render the nursery attractive at all seasons, and a few notes upon the leading features there at the present time will show that even in such a season as this flowers can be had in abundance. The winter-flowering *Zonal Pelargoniums* are still bearing plenty of blooms, and the usefulness of the plants is very great, for they have provided a brilliant show in the houses since October, the singles being the brightest and best for grouping and general effect, while the doubles are invaluable for cutting. The latter are, however, now getting past their best, though there is no lack of singles to choose from, some of the most striking being as follows—*Scarlet*: *Ajax*, *Plutarch*, very dark; *Aurore B reale*, light scarlet, large bloom; and *Lord Rosebery*, bright. *Crimson*: *Zelia*, *Octavia*, and *Ferdinand Kauffer*. *Imogene*, salmon; *Norah*, blush, very fine; *Kate Greenaway*, pink, large and deep; *Lady Read*, pink centre, white edge; *Swanley Gem*, rosy salmon, white eye; *Edith Little*, blush; *Eurydice*, pink, white centre; *Mary C swell*, blush; and *Constance*, pink, a handsome variety. The double varieties comprise the following—*Colonel Flatters*, crimson; *Laknal*, crimson; *Ble Noir*, dark crimson; *Mrs. Cordon*, cerise scarlet; *Lord Mayor*, purplish crimson; *Lord Derby*, pink; and *F. V. Raspail*, scarlet. All these are reliable winter-flowering varieties, and form a selection of much value.

*Primulas* have two or three houses devoted to them, and are in superb condition, vigorous plants, with plenty of bright or puce flowers. The *Swanley* strains of red, purple, white, and blue form the bulk of the stock, and possess their distinguishing characters true and strongly marked, as much care has been given to the selection and fixing of the types. In addition to these, however, there are some choice named varieties, such as the large handsome delicate blue-tinted *Princess of Wales*, the curious lilacina, the charming Fern-leaved *delicata*, the enormous rosy crimson *Mammoth*, the largest-flowered variety of all; the dark-stemmed *Queen of the Whites*, and a wonderfully bright form called *Coccinea Improved*, which was obtained from *Swanley Red* crossed with the old *Coccinea*, possessing the size and substance of the former with the brilliant colour of the latter somewhat deepened. Then of double *Primulas* there is the invaluable old *Double White*, affording its blooms by the basketful, and other doubles of the *Gilbertian* type, such as *Mrs. Laxton*, white; *Earl Beaconsfield*, pink; *Marchioness of Exeter*, white; *Miss Eva Fish*, and *Annie Hillier*, blush, very delicate and pretty, are also flowering plentifully. The curious Parsley-leaved *crispata alba plena* is worth growing, as it is quite distinct in foliage from any of the other *Primulas*, but the flowers are not so useful as those of the old *Double White*.

Houses of *Cyclamens* in flower form another feature, the variety *giganteum* being extremely beautiful for the size and substance of the flowers. The stock of seedling *Cyclamens* for another season is astonishing. Thousands of healthy little plants about three or four months old in small thumb pots are those that a year hence will contribute to the floral display what the others are doing now. *Bouvardias* are in similar numbers, the larger plants flowering freely, such as *Vreelandi*, white; *Priory Beauty*, pink; *Hogarth* and *Dazzler*, scarlet; with the double pink *President Garfield*; white *Alfred Neuner*, and scarlet *Sang Lorraine*. A pretty group is arranged in one of the houses, composed of dwarf *Oranges* in pots, and which, for ornamental purposes, might be much more freely employed than they are at present. The pots are mostly 32-size, and the plants from 9 to 12 inches high, bearing from six to twelve fruits, that ripen gradually and remain on the plants for a considerable time.

Winter-flowering *Begonias* occupy much space in the same house, and those who wish to increase their supply of flowers in the early months of the year cannot do better than procure a good selection of such *Begonias*, for they are easily grown and exceedingly floriferous. The *semperflorens* varieties stand at the head of the list, comprising the ordinary form, with *gigantea carnea*, a deep rosy red when opening, and paler when expanded; and *gigantea rosea*, similar in habit but having delicate rosy pink flowers. The hybrid *B. Carrieri* is very free and compact in habit;



the well-known *B. nitida*; *B. Greigi*, small white flowers, neat and pretty foliage; *Ingrami*, *fuchsioides*, *Knowsleyana*, *Digswelliensis*, and *floribunda multiflora*, similar in habit to *B. fuchsioides*, but with pale pink coral-like flowers, are all charming *Begonias*. A distinct variety of the *manicata* type, named *aureo-maculata*, has large leaves boldly spotted with bright yellow. There is a grand stock of Tree Carnations, and a large proportion of that useful yellow *Pride of Penshurst*, which has neatly formed flowers of a bright soft puce tint, and is much superior to the majority of

rapidly increased to meet the enormous demand. There are very few *Chrysanthemums* left in flower now, but one is just developing its blooms, and is considered by Mr. Cannell as the best of all late-flowering varieties. It is the large white *Anemone Virginale*, which flowers naturally at this season, and with a little special treatment might be had much later. It is strange that it should be so seldom seen grown for this purpose, and we did not observe an example of it at the National *Chrysanthemum Society's* Show of late varieties at the Westminster Aquarium recently. A group



FIG. 9.—NEW CHRYSANTHEMUMS.

varieties of the same colour. It is also of good constitution, flowering freely and continuously over a considerable period of the winter.

The Tuberous *Begonias* to which so much attention is now paid are still resting, but preparation is being made to start them, and there will soon be plenty of work in potting. The tubers are very carefully treated, and no doubt often success is dependent upon this in no mean degree, the great point being to prevent their injury by mildew. The most engrossing work just now is propagating the *Chrysanthemum*, of which many thousands of cuttings are already inserted, and their numbers are being

of varieties to which Mr. Cannell has given some attention are those he terms "ladies' *Chrysanthemums*," and of which some are represented in fig. 9. These comprise single varieties chiefly with a few of the *Anemone* type and some small distinct *Japanese*. They are novel both in form and colour, and one—that at the upper part of the figure, named *Catherine-wheel*—was certificated last year. The ray florets are white and the centre golden yellow, a pretty contrast. The others are "*Crushed Strawberry*" on the right hand side of the figure, of a reddish tint; *Lady Churchill* on the left, yellow, with reddish bronze tips; and *Lady Dilke*, a small



Japanese variety of a bright rose colour, whitish in the centre. They are all distinct and attractive varieties.

### NOTES ON SOME GRAPES.

IN 1874 a house of Muscat of Alexandria Vines was planted here. The border was made of what was considered first-rate loam, rather inclined to clay than to sand. The drainage of the site was as perfect as it could be made, and the average depth of the soil was 2½ feet. There was no manure of any description put in it except ground bones and horn shavings. The progress of the Vines for several years was most satisfactory—in fact, they made splendid Vines in a very short time, and for several years brought very fair Grapes to a certain stage, but never finished them to my satisfaction. Always in autumn the foliage became spotted and scorched, decayed prematurely, and of course the Grapes shrivelled.

In the same range and in exactly the same soil other varieties of Grapes, such as Black Hamburgh, Gros Colman, &c., were planted contemporaneously with the Muscats, and without an exception they all did remarkably well and continue still to do so. Various remedial measures were adopted in the case of the Muscats; but not proving quite satisfactory, in the autumn of 1883 a trench was taken out right across the border at a distance of 9 feet from the boles of the Vines, crashing through every root, where these were numerous and in perfect health. Then the soil was carefully removed up to the boles of the Vines, preserving as many roots as possible. The border was made shallower by 10 inches by adding broken bricks and rough gravel to the surface of the site. The strong roots were cut back severely, and laid in soil consisting of exactly the same sort of loam as they formerly grew in, but with a considerably greater amount of lime rubbish, charcoal, &c., than was put into the original border, for the conclusion was arrived at that the evil arose from the border being too deep and not open enough for the great rainfall of this district—sometimes nearly 6 feet in a year.

In 1884 the growth was not very strong, but the foliage was maintained to the last and ripened perfectly. The Grapes ripened much better, and did not shrivel. In 1885 the Vines made stronger growths than ever before, carried their foliage till it ripened to the amber colour of a Maple, and the crop of fruit was of course in proportion as to quality. This experience may be of use to some of your numerous readers similarly situated.

Black Hamburgh and Gros Colman, as well as other varieties, including the Duke, seem to revel in the strong well-drained loam 2½ feet deep. I find Gros Maroc a very inferior Grape in every point except colour to Gros Colman when grown in Muscat heat. The former I have not in a cool house, and the little there is of it is a graft on a Muscat stock. I consider it a watery flavourless variety. Some consider Cooper's Late Black to be identical with Gros Maroc. I should doubt that verdict very much, but shall be in a better position to offer an opinion on the point next season.

It will perhaps be remembered by some of your older readers that in 1860-61 I fought a pen-and-ink battle with several writers, among others the late Mr. Cramb of Tortworth, in relation to the Bowood Muscat, I maintaining that it was quite distinct from the common forms of Alexandrian Muscat, and the other writers denying this. My opinion was never shaken by anything that has been advanced to the contrary, and I was not a little interested to find an experienced Grape-grower pointing out the difference between the Bowood and Muscat of Alexandria in the calendar in a contemporary recently, and in almost the same words—at least, to exactly the same effect—as I used a quarter of a century since. Mr. Coleman states that he had his Bowood direct from Bowood, and so I received the Vine I wrote of in 1860. Mr. Coleman points out now, just as I did then, that it is earlier and that it has broader bunches and rounder berries. You, Mr. Editor, make Bowood and Muscat of Alexandria identical. In a sense you are correct, but they are perfectly distinct varieties—more distinct than any two varieties of Black Hamburgh I know. I note, however, that in your select list you give Bowood and Muscat of Alexandria. Since I came here I have bought what was called Bowood Muscat, but have never had it true. As it is so good a setter and earlier than Muscat of Alexandria I should like and hope now to have it again.—DAVID THOMSON, *Drumlanrig*.

[The Bowood Muscat Grape is one of those pomological puzzles that crop up from time to time, and which give rise to much discussion before they are effectually solved. The distinctness of this variety and its identity with White Muscat of Alexandria have already been subjects of heated discussion. The late Mr. Cramb of Tortworth lost his temper and nearly lost his head over it; and after the question was thought to have been settled it turns up again after a lull of nearly a quarter of a century upon the authority of two noted cultivators whose opinions always claim a patient

hearing. We saw one of the first bunches the Bowood Vine produced, and on reference to our note at the time we described the berries as oval inclining to Pear shape. In the plate issued in the volume of *The Florist* for 1857, which was then edited by Mr. Spencer, who raised the Bowood Muscat, the berries are there represented as long oval, the description in the text being "oval and sometimes Pear-shaped." Mr. R. Thompson describes them as "very large, oval, inclined to obovate." Mr. Coleman, it seems, now says they are rounder than Muscat of Alexandria. The most characteristic feature is that which both Mr. Thomson and Mr. Coleman rely upon, and that is its earliness. We shall be glad to hear the opinion of some other of our experienced readers on this subject.]

### NOTES ON CHRYSANTHEMUMS.

MESSRS. ORCHARD AND MOLYNEUX are both of opinion that Japanese Anemone-flowered are not admissible in a stand of the orthodox Japanese sorts, and it also appears that our "regular judges," whoever they may be, would disqualify an exhibitor who infringed this unwritten law. The question is, How did these Japanese Anemones originate? If they owe, as I believe they do, as much of their parentage to the Japanese as to the Anemones, or, to be plain, are a distinct natural cross between the two, surely they have as much right to be admitted in one class as in the other. They are simply relegated to the Anemone section principally because they are most wanted or there is more room for them there, Japanese varieties being really too plentiful. For somewhat similar reasons several of the reflexed Japanese varieties may well be admitted into the reflexed section, as here there is also a paucity of colour. The time is not far distant when we shall have a grand mixture, one section running into the other, and the Chinese, which include the incurved and old Anemone sections, are evidently largely contributing to the creation of new so-called Japanese and other sorts. As instances of this I have only to point to the Japanese Anemone-flowered and the semi-globose Mrs. Todman, while Comte de Germiny and, in a lesser degree, Japonais evidently have Chinese blood in their veins.

As Mr. Orchard rightly remarks, the line must be drawn somewhere, but I maintain that this unpleasant duty should not be left to the judges, but it should be done authoritatively. There ought to be no difficulty about it any more than there is in the case of the Rose. Numerous practical growers doubtless will disagree with my views, but, as I previously mentioned, a well-informed authority expressed the opinion that we acted rightly in the matter.

Mr. Molyneux infers that I have formed a very poor opinion of the merits of Lord Alcester, and hints that the plants were not well grown, but he is wrong in both surmises. The plants that produced the mal-formed blooms were extra strong, standing fully 5 feet high, and the buds were very promising, yet proved extremely disappointing. The blooms were very large, but if Mr. Molyneux or anyone else could have dressed them into good form, all I can say is that they are very clever dressers indeed. We had plenty to practise on, both on and off the plants, but failed completely with them. It is a fine variety all the same. With regard to the sport from Mrs. Forsyth, I can only say that it much resembles its parent, and I do not think such an experienced and well-known grower and exhibitor as Mr. Bradner would make any mistake in the matter; at any rate, I should not, with my comparatively short experience in Chrysanthemum culture, venture to question his ability to "rightly name" the parent of the sport. Mr. Molyneux shall have an opportunity of judging for himself as to the merits of the incurved Chrysanthemum John Bradner.—W. IGGULDEN.

### REVIEW OF BOOK.

*The Golden Gate and Silver Steps*, by SHIRLEY HIBBERD. London: H. W. Allen, 4, Ave Maria Lane.

WHATEVER emanates from the pen of Mr. Shirley Hibberd is either instructive or amusing. In the volume before us he has gathered together a number of what used to be called "fugitive pieces" which have appeared from time to time in various publications, and they may all be classed in one or other of these categories. The amusing certainly predominates; but there are also among them themes that stir the heart and stimulate the finer feelings of our nature, notably the poem "Water-creases." It reminds us of Thomas Hood.

A citation from the chapter of "The Philosopher's Garden" shows that quiet humour is not incompatible with sensible hints.

At an early age my father took me to see the philosopher's garden. I am sure he was attracted by the feeling that prompts many people to take their children to see pantomimes. They take them because they want to see the pantomimes themselves. It was so in this case, I am sure, though I must say on behalf of Dad that he made as many opportunities as he could for me! and blessed be his memory for all he did! The philosopher had invited him to see the garden, and he pretended (bless his pardonable vanity!) that he went for my sake, when I knew at the time he was on a sharp look out for his own individual gratification. However, we did go; and that constitutes the first chapter of this dull story. I remember we were most cordially received by the members of the philosopher's family; and I remember, too, I trembled with fear of meeting the philosopher, for I expected he would stand on a pedestal high above our heads, clad in scarlet robes dotted with cabalistic figures, with a wand in his hand and a crown on his head, and a most awful voice like thunder in the cellar, as I had seen (and heard) the representation of a sorcerer in a waxworks exhibition that



had a week previously pitched a tent for itself in our village. Into the garden, of course, we went, and very soon a smart handsome man, with quite a human countenance, and a rather slovenly costume, but with nothing particular in his manner or appearance, met us, gave us a cordial greeting, and proved to be (as I duly learnt by what took place) the philosopher. Oh, the relief it was to me to find he was like any other man! and, oh, the mystery that such an ordinary human being should be a philosopher! I forget his name, but I remember his silvery laugh and his chaffing Dad about French soldiers being Scarlet Runners, and German sailors Prussian Blues, and English captains blushing Cucumbers, and a lot more nonsense that probably had point and piquancy when uttered, and remains with me only in a kind of fossil state, without form and void, and involved in darkness on the face of the deep.

You see, I am heating about the bush. The fact is, I remember many things about the philosopher better than I remember his garden. Now, strange to say, my numerous observations of gardens have helped me to some extent to recall, by an act of introspective comparison, many of the primary features of this garden. I remember some talk about collections; and it appears to me that the philosopher had collections of all the classes of plants he thought worth collecting. I seem now to hear him say, something in this fashion: "The man who makes collections of Potatoes, Peas, Parsley, and Pumpkins is a fool; but there is some sense, if you want intellectual amusement, in collecting species of Delphiniums, Dianthus, Drabas, Dodecatheons, and Droseras; but" (to sustain the alliteration) "collections of Dracoccephalums, Digitalis, and Dornicums would just suit an idiot's paradise." I remember that he talked considerably, and hammered away very much about the occupation of the garden with plants that, by usefulness or beauty, were really worth a cultivator's attention. "We must leave the weeds to Nature," he said; "they are beautiful in various degrees, but we must root them out of our gardens. If we want to see Thistles in perfection, let us not plant them in our gardens; rather let us go the country and ramble about and take our chance of finding them: if we do find them, we shall find good samples—better far than we can produce in our gardens." Now, it occurs to me that the philosopher explained to Dad the reason why our British plants usually fail in gardens, while exotics prosper—"a great enigma" he used to say. Now, this was his explanation: Exotics have no choice of conditions; they must live and die according to the conditions they are subject to when taken into cultivation. Those that are of an adaptable nature—as, for example, the zonate-leaved Pelargonium (the "Geranium" of that day)—and by their beauty compelling assiduous attention to their wants, are mastered by the cultivator and obtain a permanent place. Exotics must live or die, but natives will live in the field, though they may die in the garden. But why should they die in the garden? Because, in the first place, we do not value them sufficiently to ensure them the conditions they require; and, secondly, because many that we prize the most are the least adaptable to a variety of conditions. "Look at our native Orchids," I seem to hear him say; "if you plant them in the common border, and expect them to thrive in the same soil as the Primrose or the Pansy, you will probably lose them, and serve you right. If they had cost you a thousand pounds apiece, you would not grudge them a piece of chalk or something else useful. But the wise man will hunt for them on the downs and in the woods, and never tear up a root; for he will say, 'Let Nature grow these things for me in her inimitable style, while I grow things that Nature never would produce for me in this climate.' Thus," added the philosopher, "exotic plants are more worthy of our attention, because the natives do not need cultivating at all."

The Philosopher's Garden was not particularly gay or startling in its appearance. I know Dad was never tired of describing it as an "interesting" garden. At that time the bedding system was but partially developed, but green grass and clean gravel were well known, as were noble trees and lustrous evergreens. This garden, I know, was rich; for as I call it to mind I seem to be suddenly enclosed in groves and shrubberies that were vocal with a feathered choir. "No bird-murder here!" said the philosopher, when my Dad suggested that he might make a pasty of nightingales' tongues. There was ample space, breadth, dignity, and a conformableness of details to the primary idea. So at least I believe at this day, having in mind many good gardens that were much like, or altogether unlike, that of the philosopher. It was full of objects of interest, all more or less rustic or gardenesque. If in roaming about you came upon a good view, there was a rustic seat or alcove ready for your resting-place from whence to enjoy it. And there were retreats open to the south for chilly days, and others open to the north for burning days, and trees were usually employed to afford shelter; for the philosopher said, "There is no draught through a wood, and neither heat nor cold in a wood; therefore deep shrubberies must be the best shelter against sunshine, frost, and wind; and, as for rain, we should, weather permitting, imitate Lord Bacon, and take off our hats to it."

Two things especially made an impression on me. There was a snug rustic house in the garden called the "reading-room." It puzzled me to find a house with about half a dozen separate rooms in it called the reading-room; but I have a hazy kind of remembrance that, while the principal room was full of books and had comfortable lounging-places for readers, others were occupied with curiosities gathered from the garden, such as portions of trees perforated by beetles, great fungi that had been baked in the oven, wasps' nests; in fact, they were rough museums in which objects were selected and prepared for the grander museum within doors. One Watson Winnatt—so I remember the name, but perhaps incorrectly—was called to explain the things, and this disclosed to me the startling fact that the philosopher was either not acquainted with anything in the world, or was limited in his willingness to impart information.

An amusing five minutes may be spent in reading "Botany in a Bonnet Shop." The book is highly entertaining, and is one of those which one can take up and lay down at pleasure when the mind wants rest.

### THOUGHTS ON CURRENT TOPICS.

STILL "current," because it cannot be so soon forgotten, is the new year's greeting of an old and honoured correspondent, "D., Deal." Whether it was innate modesty, which so many admire who do not possess it, or merely a literary flourish to anticipate the public verdict

on his production would be "bad at the best," I know not; but this I know, it is not my verdict. On the contrary, I consider the greeting admirable, and when we remember it is the work—pleasurable work obviously—of a twenty-five-years regular contributor, it is, I think, little short of wonderful. Who amongst the younger scribes can hope to write so freshly after an intellectual drain of a quarter of a century? Instead of its being penned by the "oldest inhabitant," it might in some respects pass well as the happy effort of a writer just in the heyday of manhood. It is jaunty, agreeable, hopeful, and encouraging, and it contains a maxim that could only be born of experience—"Attempt what is possible, not what is impracticable, and don't get beyond your depth." To comment on that would be to weaken it. Let it be remembered, for it is not often that more wisdom is condensed in a line and a half. More power to the "old boy," good health, increased friendships, no woolly aphisms, and few floral failures during the current year.

TURNING over a leaf still new—we most of us pretend to do that at the beginning of a year—I find "B." writing sensibly on keeping Apples. He is right. The fruit will keep just as well in heaps as in the fashionable "single layers," if only sound examples be stored; even a good deal better buried like Potatoes than in too warm and too dry rooms. Tons of cider and culinary Apples are kept in this way as long as any others, and in the case of a few decaying the evil is not communicated quickly to others under these cool conditions. If it is desired to preserve a few choice late specimens as long as possible, wrap each in a few folds of tissue paper, then brown paper, and store in close boxes in a cold cellar. Do not use old newspaper, or the fruit may be flavoured with printer's ink, which is not always palatable either there or in "the press." Your correspondent is right on another point. Quantities of Apples and Pears are spoiled by being gathered too soon. It is much better to let them wait for a slight frost than to break them off the trees by twisting the stalks.

I AM obliged to Mr. Temple for recording his experience on the effects of tar in Peach houses, not because it confirms my suspicions, but because his evidence is more weighty than mine, and the lesson is enforced that it is dangerous to keep tar anywhere near ripening fruit. I am quite as willing to be opposed as sustained in anything advanced, for while endeavour is made not to write recklessly and without as much deliberation as can be afforded, a stray "thought" may need correction, and I earnestly hope may be corrected.

FOR instance, thinking quickly over the subject, I am impelled to say that the elaborate Potato experiments that have been conducted at Chiswick during the last two years, and recorded on page 5, are of no practical value—or rather perhaps it should be said the results are far from being commensurate with the labour, well and worthily as it has been applied. What are we told? That Potatoes not earthed produce several greened tubers. Did not all the gardeners in the land know that years ago? That bending down and consequently rupturing the stems of the plants reduced the weight of tubers. How could it be otherwise? Had the summer been wet instead of dry the experiment would have been ruinous. If the Special Committee make further experiments, let me suggest that they tie the stems of some plants up, so that all the leaves are fully exposed to the light and air, and break some of the others down. If they will do this, and the former do not yield a crop of tubers 20 per cent. better than the latter, I will engage to eat the lot if allowed and afforded time.

IN my opinion the "Jensenian system" of earthing Potatoes much deeper than is customary is incorrect as regards its origin, and the Royal Horticultural Society is engaged in the dignified occupation of nursing a philosopher's fad. As has been more than once published in this Journal, the system of repeatedly "moulding" or "crowning" the roots of Potatoes with earth has been practised on a ten times larger scale in this country and for a ten times longer period than in the Chiswick experiments, long before Professor Jensen's name was heard of in this country. Let no one imagine that I advance any claim to the authorship of the practice. I am, like the Chiswick experimenters, an imitator. I have tried it and found it answer in wet seasons, but should be as sorry to pretend it is the Thinkerian system as the Royal Horticultural Society would be to claim it as the Chiswickian. It is neither Thinkerian, Chiswickian, nor Jensenian if we go to the origin of the practice, as we should do for authorship. And where are we led? Among the savages. The system has been borrowed from the Aborigines of New Zealand. It is the established method of culture of the Maories, and if it is necessary to give it a scientific name the right one is the Maorian system. This is "one to the savages" in these days of advanced civilisation, and we may expect to see the "New Zealander on London Bridge" soon.

THE only conclusion having a practical bearing that appears to have been arrived at in the Chiswick experiments as regards extra earthing, is the probability that its effects differ in differing varieties. This may be so, but of what earthly use is the knowledge by the side of an equal probability of the results varying in differing seasons? During the cold wet summers of the last two decades the crowning method proved advantageous where it was adopted, but in the more favourable seasons of the past few years the returns did not compensate for the extra labour involved; and if the extra labour devoted to the rows at Chiswick were taken into account, as it ought to have been, the slightly increased value of the produce may have been purchased rather dearly. As no account



is rendered of the relative cost of the aboriginal Maorian with the old English method of culture, the results of the experiments under notice may be put down as *nil*.

So may those as regards the trial of whole and cut sets. Anyone who has had considerable experience in Potato culture can make the produce of the entire or divided sets preponderate according as they may be selected. It is the weight of the sets and strength of the issuing growths that govern, not the mere cutting or non-cutting of the "seed" tubers. No mention whatever is made of the weight of the sets in the experiments under notice, and that omission quite invalidates the authority of the summarised report. If the Council of the Royal Horticultural Society are really desirous of acquiring information that shall be of service to the nation, let a few varieties of Potatoes of established or prospective value for market purposes be planted in sets of different and ascertained weights of say, 2, 3, 4, and 6 ozs., their respective values being also recorded; also let them be planted at varying distances, and the results will show what weight, character, and value of sets can be the most profitably planted per acre. If a sub-committee determine that point, British farmers and gardeners may safely be left to choose methods of culture. Experiments conducted on some such lines as these would be vastly more useful than the practice of the past two years, as revealed in the "Summary of Results," read by Dr. Masters, and published on the page quoted. It is questionable if one cultivator out of a hundred could answer the important practical question indicated; indeed it is not unlikely if it were put to the accomplished Doctor himself, that he would have either to pause or search for a reply; is there not need, then, for authoritative information?

HAVING dwelt so long on Potatoes, in which everybody is interested I must skip a good deal; but not two contributions of Mr. T. Challis. His first on page 16 is, I think, one of the most able essays on the subject of the future of gardening and gardeners that has ever appeared. Wise counsel is therein conveyed to both masters and men, with a manifest desire that both may be benefited. This is the time of all others when master and servant should work together and have confidence in each other. The welfare of both is interbound, and neither can possibly gain if mistrust exists between them. Fighting for supposed "rights" may appear heroic, but there is this great danger of a false estimate being formed, and what are regarded as "rights" might possibly be sometimes more accurately described by another name. At any rate, it is well not to forget Abraham Lincoln's trite remark during a period of difficulty: "Never swap horses in crossing a stream."

MR. CHALLIS in doubting the forecasts of prophets becomes prophetic in turn in the following sentence:—"When by the passing of judicious laws the owner and the occupier shall each feel himself safe to invest his capital with ample security, and with every confidence that it will be safe from the intrigues of misguided agitators—then, and not till then, will gardening and gardeners flourish with increased vigour." Numbers of landowners are arriving at the same conclusion, and that is the most hopeful sign of a better future.

I WISH we could feel the "National Gardeners' Relief Fund" scheme practicable; but there is reason to fear it is not. The number who would support it would be so limited that their contributions must consequently be greater than could be borne. The gardeners' benefit societies already established in Leeds and London, safe, sound, and excellent as they are, do not attract members in anything like such numbers that would justify the establishment of a "National Relief Fund." The capital would have to be very great to meet the strain of such times as the present. Only the larger trades, and hundreds of thousands of members, can support such an organisation. On that account vast numbers of workmen in towns, outside those trades, have formed loan societies, duly enrolled, and though these no doubt occasionally lead to indulgences, such as a seaside sojourn, they have been of enormous benefit in periods of adversity. And the rules are so framed that a Society of fifty members works as well as one having ten times that number, the payments in and out being in each case the same. I believe I could get some particulars of one of these societies if it were thought they could be of service to gardeners. I am not at all sanguine on the subject, but then when I had my "bumps examined" once I was told my "caution" was "very strongly developed," so had better leave the matter for the consideration of more enterprising persons.

BUT closely as I agree with Mr. Challis in the major part of the communication referred, I am compelled to differ very widely from him in his remarks on judging on page 28. His reasoning is excellent, but it is founded on error. There can be few, if any, "palpable and undoubted errors of judgment" unredressed if the two simple rules that are found in the schedules of many societies are adhered to, and competent judges are appointed. The rules are these:—"Complaints of exhibitors cannot be entertained unless made in writing to the Secretary before 3 P.M. of the day of the Show." Or any other convenient time may be stated, and the judges understand they have not completed their duties till after that time, but must be present to rectify with the Committee any possible oversights. The other rule is "the decision of the judges shall be final." Mr. Challis's experience of exhibitions and exhibitors may be greater than my own, but I think I know enough to assure me that if once committees arrogate to themselves the duty of altering the awards of their appointed adjudicators they open a door for

mischievous mischief that they will find a difficulty in closing again. They can grant "extra or consolation" prizes as they deem fit, but if they tamper with the judges' awards they will undoubtedly engender mistrust, and almost certainly make more mistakes than they will rectify. I could tell a few curious stories of committeemen and judges that would perhaps surprise Mr. Challis, and I strongly suspect would lead him to modify his opinions in some respects; but it is not necessary, for if those rules are provided and adhered to, and committees prove *their* competency in selecting able and experienced censors, "palpable and undoubted errors," however apparent to some persons, will, in ninety-nine cases out of a hundred, be reduced to mere imaginings.

HAS Mr. Challis read Dr. Johnson's famous work, "Rasselas?" If he has, perhaps some other Journal readers have not, and a passage may therefore be cited that is not without bearing on this subject:—"When in prospect of some good, whether natural or moral," observes the wise man, "we break the rules prescribed us, we withdraw from the direction of superior wisdom, and take all consequences upon ourselves. Man cannot so far know the consequences of causes and events as that he may venture to do wrong in order to do right. When we attempt to find a nearer way to good by overleaping the prescribed boundaries we cannot escape the consciousness of our fault; while if we miscarry the disappointment is irremediably embittered." The weight of those words will be admitted. The moment we break through rules and laws we are on dangerous ground, and that is why I cannot agree with your able and excellent correspondent on this question.

INTERESTING observations have been recorded on the handsome and useful Gros Colman Grape. Mr. Taylor is a thoughtful, observant, practical man, and everything he says on the subject is entitled to respect. The tendency of the foliage of this Vine to scorch he attributes mainly to a deficiency of potash in the soil. He may be right, but I have a strong suspicion that at least one great evil, easy to be remedied, is an inadequate supply of water. If the absence of potash alone is the predisposing cause of the premature collapse of the foliage, how is it that shaded leaves continue fresh the longer? They may be expected to be as well stored with mineral matter as the others, whether it be little or much.

THAT potash is essential to the well-being of Vines is proved by analysis. There is much of this in the wood and fruit, but very little in the bark. For the leaves I cannot answer satisfactorily. I have collected from time to time from various sources analytical tables showing the constituents of different parts of the Vine—wood, bark, leaves, must, skins, stones, juice. Potash predominates in all except the bark and the leaves, and the latter contain more than four times the quantity of carbonate of lime than of potash. Why then cannot I answer for the leaves? Because I have no proof that those examined would not have contained more potash if it had been in the soil for them to appropriate.

PARDON a little digression. After a good deal of thought on the subject I have arrived at the conclusion that analytical tables giving the constituents of Vines, or anything else, are of little value, or, worse than that, may be misleading if unaccompanied with an analysis of the soil in which the products examined were grown. In four tables showing the constituents of the wood of Vines the quantity of potash varies greatly. Nor is this to be explained by chemists differing from each other in their work, because there are no greater differences than those found by the same chemist as the result of his examination of Vines grown in separate localities; there is the possibility, therefore, of being misled in this matter by strings of figures unless they refer to the soil as well to that which may be grown in it; still the fact remains that the leaves of Vines contain, so far as I know, a very small relative amount of potash. If any readers can show this is not so I shall be very much obliged to them.

BUT there is no doubt they consist chiefly of water. This is constantly escaping by evaporation, and if to a greater extent than is absorbed by the roots, there can be no other result than a collapse of the foliage. If shade is afforded evaporation is arrested, and the leaves remain fresh. The supply from the roots is then equal to the demand of the atmosphere. That demand being so great, and the moisture so readily yielded by this particular Vine, does it not seem reasonable that the root supply should be increased in proportion? I am convinced this is the root of the evil.

BUT why should Gros Colman possess what may be termed greater evaporating power than other Vines? There are two reasons. One of them anyone can see with the naked eye, the other possibly with the aid of a microscope. The obvious reason is this: The leaves of Gros Colman are not only large, but nearly entire; those of most other Vines both smaller and more or less divided. Contrast the leaves of Gros Colman with those of Muscat of Alexandria or Mrs. Pince for instance. Measure with great accuracy the superficies, and it will be found that the evaporating area of the former is much the greater; multiply the difference by the number of leaves on the Vines, and, if I mistake not, this will demonstrate that the variety under discussion needs distinctly more water than the others, and if it does not have it the foliage will fail by exhaustion.

THE other thought on this subject—the microscopical thought—is not my own; I am simply the recorder of it. In discussing this matter with a close botanical observer, who will soon know "who 'Thinker' is" (but that does not matter), he remarked that the cells are unusually separated



in the leaves of Gros Colman, and therefore moisture is quickly extracted by the sun. The closer the cells are packed together the greater is the resisting medium to the solar rays, and *vice versa*. Consequently the looser the tissue the greater the supply of water must be to sustain it, or shade must be afforded to arrest evaporation. For these reasons, then, I think that more water rather than more potash is required to enable Gros Colman to "keep its foliage;" but fortunately both can be given together if liquid manure, consisting largely of urine, be poured to the roots of the Vines. I will now cease thinking at present, and let others have a turn.—A THINKER.

### CAMPANULA CORONATA.

AMONG floral treasures the Campanulas hold a conspicuous place. Scarcely a country within the temperate zone which does not contribute several species to this very interesting genus. Their general appearance is well known, for the gardens are few indeed in which some Bellwort is not to be found. In so extensive a genus considerable differences of habit would naturally be looked for; and, accordingly, we find species varying from a few inches in length—as in the elegant little *C. pumila*—to several feet, as in the equally well-known *C. pyramidalis*. Some of



Fig. 10.—*Campanula coronata*.

them are trailers, of which class the *C. garganica*, often cultivated as a window plant, may be cited as an example; but far the greater portion of the species are of erect growth. A few are annual, and there are about twenty biennial species; but the genus consists chiefly of herbaceous perennials. White, and various shades of violet, blue, and purple, are the prevailing colours; there are, however, several yellow species, and also a few of a reddish lilac, but none of a distinct red tint.

The present plant is a hardy perennial, growing about 3 feet high, and having foliage closely resembling that of the Peach-leaved Campanula, *C. persicifolia*. The white calyx, with its green tips, has a very pretty effect, and we strongly recommend the species for general cultivation. It is of easy increase by seeds or division of the roots in spring.—W. T.

### HORTICULTURE IN THE UNITED STATES DURING THE LAST FIFTY YEARS.

THIS is a subject not unworthy of our consideration when we look at the almost universal interest it exercises over the minds of the people of the present day.

At the time our story begins, 1837, Philadelphia was considered the headquarters of horticulture; here were to be found the Landreths and

Maupays, as nurserymen, or dealers in fruit and ornamental trees; while Buist, Sherwood and Dryburg, Ritchie and Dick, McKenzie and Buchanan, with D. Feters, were florists of good repute, and the few private collections of any note were Pratt of Lemon Hill; J. B. Smith, of Moyamensing; General R. Patterson, and Mr. Pepper, the brewer, whose greenhouses occupied a building on Chestnut Street, second and third storeys.

The principal kinds of plants then in demand consisted of Camellias, Roses, Pelargoniums, and Chinese Primroses. Of hard-wooded New Holland and Cape of Good Hope plants, were Acacias, Pimeleas, Chorozemas, and Leschenaultias, with a sparse sprinkling of Cactus, &c. Ferns were not known in those days by florists. In making up bouquets, which were not much in demand, the flowers used were mostly Camellias, Roses, single Chinese Primroses and Carnations, and as green to set these off, Chinese Arbor-Vitæ, with Rose Geranium leaves, were the steady standby. Plants in pots, for the decoration of private rooms or public halls, were seldom called for; in fact, the articles wanted, as Palms, Gum Elastic, &c., did not find a place with florists.

In New York, Thorburn, Hogg, Dunlap, and Bull were the leading flower growers, while as tree nurserymen, the Downings at Newburg and Wm. Prince, Flushing, were the only notable cultivators. Mr. Prince, though eccentric in character, was notable for his zeal in introducing new and valuable fruit and ornamental trees into the country, and among these new things, which, be it said, proved of little account, was the Chinese Yam, about which, for a time, he hoaxed the country, but after giving it a fair trial it was found that half a day's work of a man was necessary to dig as many roots as would make him a dinner.

Boston then contained one horticultural establishment of merit, that of Hovey & Co.; one of the firm, C. M. Hovey, conducted the *Horticultural Magazine*, the only monthly periodical of the kind in the country. It was ably managed, and gave much valuable information on fruits, among which Mr. Hovey is an expert even at the present day. He it was who, against much opposition, advocated the merits of the Concord Grape, and it has nobly sustained the estimate he then formed of it. Boston people ought to be thankful that they have had a Hovey and a Wilder to educate them up to the high standard of horticulture which they now enjoy, and in which work my old friend, Dr. Asa Gray, has given valuable aid.

In the year 1837 such plants as are suitable for ribbon and carpet bedding out were almost unknown, but we then formed groups of Roses, double Dahlias, Heliotropes—mixed with Fish Geraniums, as they were then called—but the effect produced was anything but artistic. But about this time a scarlet, a white, and a lilac Verbena were introduced by me (not by R. Buist, as published), and florists, by crossing these, in a few years numerous varieties were raised of almost all shades of colour save yellow; and just let me say here, parenthetically, that I grew a yellow Verbena in Scotland in the year 1832 (*Verhena sulphurea*), introduced from South America by Dr. Gillis; unfortunately, it never has found its way into the United States, so far as I know.

A few years previous *Petunia phœnicia* had made its appearance, and by crossing this with *P. nyctaginiflora*, a white species, many beautiful varieties, both single and double flowered, were the result. Now began fancy grouping of these, aided by the new varieties of fish or scarlet Geraniums of various shades of colour; but people were not contented with brilliant flowers; they sought after plants with gaudy foliage, which they found in *Coleus*, *Achyranthes*, *Alternantheras*, and *Centaureas*; so, at the present day, it is no uncommon thing to find a bed filled with flowers and foliage of as many colours as that which made Jacob's coat so remarkable, and we would here remark that it takes no inconsiderable amount of taste to have the colours harmonise in arranging such beds, be the style either the ribbon, carpet, or mixed type. Ladies, as a general rule, excel in this kind of work.

In Baltimore, where the taste for floriculture of late years has made rapid strides, credit is due to the Feasts, the Pentlands, and the Hallidays for the aid they have rendered, while we think that the Maryland Horticultural Society, by its exhibitions, has exercised a more powerful influence than any other agent in bringing about the present pleasing state of things. Hundreds of florists have of very recent years sprung up in the city and its suburbs, yet these cannot supply all the demands for bridal parties, funerals, public feasts, and private parties, so that quantities have to be procured from the northern establishments.

Then look at our public parks and squares in the city. What kind of aspect do they now present during the summer months from what they were a few years ago? They are found bright and beautiful, fit emblems of an advanced state of civilisation.

About twenty years ago, one of the commissioners of the squares flanking the Washington monument asked me what ought to be done to improve those grass plats. I replied, Remove the unsightly railings, and adorn the surface with groups of shrubs and beds of flowers. His answer was: "Oh! that would never do, as people would pull them up root and branch." My answer to this was, Only give the thing a fair trial, and that it was his duty as a progressive man to educate and refine public taste.

In the same space of time that horticulture has advanced so rapidly pomologists have not been idle. The ancient list of native Grape Vines, which embraced little more than the Catawba, Isabella, and Lenoir, is now supplemented by new and superior kinds that would stand counting by the scores. From many, wines are made equal in bouquet to any foreign brand, thanks to the late N. Longworth, of Cincinnati, as the forerunner in this laudable enterprise. The State of Ohio gave us a J. P. Kirkland, who raised some of the finest Cherries now under cultivation.







surface, and the best way is to fork it in immediately before putting in the crop. This, however, should not be taken as a substitute for winter digging, as forking manure into the surface and turning the soil up from 12 inches to 20 inches are two different operations.

**LEeks.**—Those who desire to have large Leeks for show by mid-summer and early autumn must sow the seed at once. The young plants will not bear forcing, and are best in a greenhouse or frame temperature. The soil cannot be too rich for them so long as they have a few pieces of fibrous turf to take to. A high temperature produces the largest plants, but it is a most difficult matter to prevent their flowering prematurely, and large numbers are often lost in this way. The main crop of Leeks will soon be valuable. They are useful in February and March; and when fully grown, as they all are now, they keep well if lifted and laid in behind a north wall or hedge. When left in the open quarters they generally become very tough in April and May, but we have never noticed this with plants in the shade as suggested.

**SPINACH.**—It is a long time since winter Spinach was so scarce with us as it has been lately. Our culture was the same as in former years, but the hot dry weather experienced at the time of sowing and when the plants were young was rather too much for them. The roots are there, and they may grow freely when fine weather comes and will give us useful gatherings in spring. We shall not trust to this altogether, and some of the round-seeded sort will be sown at once. It will soon grow in a sunny sheltered position, and we advise all who may have been disappointed with their autumn-sown crop to sow at once. In April and May vegetables are often scarce, and a good breadth of Spinach is very serviceable.

**SPRING CABBAGE.**—These always pay for the best of attention. They cannot be too early or too abundant. So far they have grown well, and those planted about the end of August are now forming good heads; but it is those which turn in about the beginning of April and onwards which are the most useful. Where the plants which are being grown on for a supply at that time are not earthed-up sprinkle a small handful of guano round each, and then draw the soil firmly up to the stem. Any blanks in the rows should be made up before completing this operation, and where there are many plants in the seed bed plant out another batch.

**CAULIFLOWER.**—Autumn-sown plants which are being wintered in frames and under handlights are looking well, and if properly managed they should not deteriorate now. Avoid putting any dark covering over them unless it is absolutely necessary. When they are covered at night from frost, always take this off during the day, and admit air freely on all favourable days. This treatment will produce very dwarf dark green-leaved plants, and these usually succeed well in spring. Make a first sowing of anybody's extra early under glass. A great many plants may be raised in two or three 6-inch pots, or the seed may be sown in cutting-boxes. Do not use sand in the soil, but sow in a mixture of loam and well-decayed manure. The latter should be used rather sparingly. As soon as the plants appear keep them fully in the light and near the glass. Do not put them into a temperature above 60°.

**LEAF SOIL.**—This is excellent for many vegetable crops, and where pits are being cleared to be refilled in spring save all the decayed matter and put it under cover to keep it dry and ready for use. When the drills are opened for the reception of seed Potatoes, if a quantity of this is put down where each set is to be, and more on the top of the tuber, the Potatoes will turn out beautiful and clean. In heavy soils leaf soil may be used with advantage for all crops; sand and old potting shed soil are also excellent for covering seeds in early spring, and now is the time to see that a stock is in readiness for use during February and March.

**HORSE RADISH.**—It is a mistake to dig and replant this annually, but it spreads so much that it ought to be taken up every two or three years and either put in a fresh place or restricted to the old. This may be done now. The ground in which it is growing should be trenched, and in doing so pick every one of the roots out. Select some of the thickest and straightest for replanting, and cut them about 6 inches in length before putting them in. The soil in which they are replanted should be rich and deep, 2½ feet from row to row, and 15 inches from plant to plant will be found a good distance to plant. We dig the ground first, and then dibble in the roots afterwards, and the whole of the roots which are left are laid under soil or ashes for use as required. We always grow our Horseradish in rows between fruit bushes, and it has no chance of taking possession of vegetable quarters or disturbing any other crop of value.

#### FRUIT FORCING.

**MELONS.**—Seeds having been sown as advised the plants will now have formed the second or rough leaves, and as the root-action will be in proportion to the increased growth, the necessity for the removal of the plants into pots a couple of inches larger in diameter will become apparent. This must be done before the plants become root-bound, again plunging them in a bottom heat of 75° to 80° and near the glass, putting a small stick to each plant for its support until large enough for transferring to the hillocks in the Melon house. Plants that are intended to be planted in pits and frames, and trained over the surface of the beds, can be planted out as soon as they require more room at the roots.

**Soil.**—The Melon requires good turfy loam, preferably heavy than light, which has been cut and stacked in the previous autumn. The top 3 inches of a pasture grazed by sheep is best, and as a rule loam of this description without anything else is ample for the production of high quality fruit, but we add about a sixth of old mortar rubbish, and find we get a shorter-jointed growth, better textured foliage, and more fruitful plants, with heavier fruits. If the loam be poor add a fourth of thoroughly decomposed manure free from worms. A quart of soot to each bushel of

compost may be added with advantage, and under any circumstances is beneficial. It should be under cover a few days to dry, be chopped moderately small, and turned twice to become thoroughly mixed.

**Planting.**—Cleanse the house or pit thoroughly, the woodwork with softsoap and hot water, the glass both inside and out with water only, and the brickwork with hot lime. Make a hillock in the centre of each light by putting in a barrowful of soil, flattening the top, which should be about 9 inches from the glass, and not more than 1 foot, the depth of soil in the centre of the hillock being 10 inches. The soil having been in the pit or frame a few days to get warm, a plant may be turned out in the centre of each hillock, or if the lights are large two plants, which is preferred by some for early Melons, but we elect to have but one plant in a light. In planting, press the soil firmly around each plant, be careful not to injure the stems or decay will soon destroy the plants. The soil at the roots should be moderately moist when turned out of the pots, so as to prevent the need of water at planting. A circle of quicklime may be drawn around each plant to keep slugs away and absorb moisture.

When the plants have made a couple of rough leaves pinch out the points of the shoots just above the second rough leaf. Maintain a steady bottom heat of 80° to 85°, or, if from hot-water pipes, 75° to 80°, as when the heat is had from fermenting materials it must necessarily be high at the commencement; and the day temperature 70° to 75°, advancing 5° to 10° from sun heat; the night temperature 65° to 70°.

**CUCUMBERS.**—*Winter Fruiter.*—Plants which have been producing fruit all the winter now exhibit signs of exhaustion, and will be the better for having the surface soil of the bed removed, and fresh supplied with an admixture of three parts loam and one of decayed manure and leaf soil, with about a quart of wood ashes in each bushel. This surface dressing will have an invigorating and beneficial effect upon the plants by encouraging active surface roots, and when these are had the plants will be in a position to take copious supplies of liquid manure.

*Regulating the Growths.*—Keep the young growths tied to the trellis, but not too tight, always leaving room for swelling; cut out exhausted growths and tie in young shoots so as to maintain a succession of bearing wood, and consequently of fruit. Avoid overcrowding the shoots, giving each space for development, and the foliage full exposure to light, and above all avoid overcropping as the greatest of evils.

*Young Plants.*—Shift these as they require more room; keep them near the glass till ready to plant for trellis training, putting a stick to each plant for support. The soil should be similar to that advised for Melons, and in the same proportions, adding a little charcoal to keep the whole porous, and made into ridges or hillocks. The treatment holds good with plants intended to fruit in pits or frames, stopping the plants at the second or third leaf. The temperature top and bottom should be the same as advised for Melons.

**VINES.**—*Earliest House.*—If the inside borders have not been watered since the Vines were started they should have a good supply at a temperature of 80° to 85° as soon as the thinning has been brought to a close, or if the borders are at all dry a good watering may be given before the flowers open, when a rather dry condition of the atmosphere must be maintained, with a night temperature of 65° to 70°, and 70° to 75° by day artificially. The covering outside should also have attention, and if fermenting materials are used a temperature of 80° must be kept up by means of additions and frequent turnings. Proceed with tying and stopping young growths until the foundation of an even spread of foliage over every part of the trellis has been secured. Select the most compact bunches for the crop, fertilise all shy-setting varieties with Black Hamburgh pollen as soon as they come into flower. Thin the most forward bunches of Black Hamburgs first, deferring the bad setters until it can be seen which are the properly fertilised berries. We may mention Madresfield Court as decidedly the best Grape we know with a Muscat flavour for early or mid-season work.

*Second House.*—Syringe two or three times a day, and turn the fermenting materials frequently, alike to prevent overheating and to liberate moisture and ammonia. Discontinue syringing when the bunches become prominent, but keep up atmospheric moisture by damping the paths and walls two or three times a day until they come into flower, when a free circulation of air rather dry with a little more fire heat will facilitate the setting process.

*Vines in Pots.*—Fruiting Vines must be carefully attended to, giving tepid liquid manure a few degrees warmer than the house, adding a little fresh top-dressing when the roots appear on the surface, and thin early, guarding against overcropping. Cut-back Vines intended for growing into fruiterers may be taken into heat for starting, and when they have made 2 or 3 inches of growth shake out and repot them in rough rich compost, using pots 6 to 9 inches in diameter, according to the roots; plunge them, if possible, in a mild bottom heat, and keep them near the glass, so as to insure short-jointed growth and thick leathery foliage.

*Stored Grapes.*—Look over these frequently. Dispense with fire heat as much as possible, a temperature of 40° to 45° being sufficient; maintain it as equable as possible, keeping the shutters closed to effect that and reduce the need of fire heat. Admit sufficient air to prevent an accumulation of damp, and keep the bottles or troughs filled with clear rain water.

#### PLANT HOUSES.

**Dracænas.**—The root stems of these plants that were placed in pans in autumn will now be ready for transferring singly into 3-inch pots. After potting, plunge them in bottom heat of 75° to 80°, and in a short time they will be established and rooting freely in the new soil provided they can be kept in a night temperature of about 65°. These plants will



do well in a compost of fibry loam and about one-third of peat, leaf mould, and coarse sand. Plants that have been in rooms and similar positions may, if they have been kept dry for a few weeks, have the root portion of the stem cut into lengths and placed in pans in a compost of light sandy soil. If these are given the temperature indicated above they will quickly start into growth. *Dracæna rutilans* is invaluable for decoration in rooms, and a good number of young plants may be raised at once and grown in a moderately warm temperature, so that they can be topped and re-rooted later in the season, for with large bold leaves at the base they are more handsome for decoration in single vases than when raised from portions of stem. Plants raised by the latter means have always small leaves towards the bottom. Any plants of *D. gracilis* or *D. Goldiana* that have grown too tall for use may now be cut down and the heads rooted. These should be cut off where the wood is moderately soft, and they will root in much less time than if cut where the wood is firm. The heads may be placed in 4 or 5-inch pots with a little sand at the base. These may be well watered and plunged in the bottom heat advised above; if covered with a handglass and kept close they will root without losing a single leaf. If an increase in the stock of these is desired they should be kept in heat until they break into growth, when the shoots can be taken off and rooted.

*Plumbago rosea*.—This and *P. coccinea* as they cease flowering can be cut back and thoroughly cleaned before placing them in heat. While in flower they are very liable to become infested on the under side of the leaves with thrips, and the plants must be dipped in tobacco water. If this is done and the stools are placed in brisk heat they will produce clean cuttings that with ordinary care will become useful plants for another year.

*Linum trigynum*.—Plants of this useful *Linum* that have flowered should be cut back and introduced into brisk moist heat to induce them to start fresh growth. They are very liable to be attacked by red spider, and if this be once established on the plants in their early stages it will prove a source of annoyance the whole season. Frequently the cuttings are attacked before they are rooted, but this need not be the case if every old leaf is removed when the plants are pruned. If this is done and the stems of the plants dipped into a strong solution of some insecticide the cuttings can be taken, rooted, and grown for a time in a moist intermediate temperature.

*Poinsettias and Euphorbias*.—Keep those that have flowered in a temperature that will not fall below 50°, where they will rest completely. While there the *Poinsettias* must be dry at their roots, and the *Euphorbias* only have sufficient water to keep the wood from shrivelling. Many *Euphorbias* after flowering are lost by being kept too wet at their roots.

*Clerodendron fallax*.—Seed ripened in autumn may be sown in moderately light sandy soil in 6-inch pots. Plants so raised will be useful for flowering in 5 and 6-inch pots for conservatory decoration. Those who rely upon old plants may prune back a few that have had a good rest and place them in brisk moist heat. As soon as signs of growth are observed they may be turned out of their pots, the roots partially reduced, and repotted in a compost of loam, one-seventh of decayed manure, and sand. Water must be carefully applied for a time after potting until the roots are active.

*Begonias*.—Such varieties as *B. nitida*, *B. n. rosea*, *B. semperflorens*, *B. s. rosea*, *B. s. carminea*, *B. Ingrami*, and others that have been kept in small pots during the winter, may now be placed into 5-inch pots. Employ a compost of loam, one-third of leaf mould, manure, and sand, and grow them in a temperature of about 60°. If allowed to come into flower they will prove invaluable for the stove or intermediate structures during the spring months when those have become tall that have been flowering during the autumn and winter. A little seed of *B. semperflorens* may be sown on fine soil in a pan.

#### THE FLOWER GARDEN AND PLEASURE GROUND.

*Hotbeds for Propagating Purposes*.—Hotbeds are by no means indispensable to propagators, but on the whole are preferable to any more dry heat, especially for raising plants from seeds. The best materials for forming into hotbeds are well-prepared stable manure and leaves in equal proportions, spent tan, or this and leaves, and spent hops. The first-mentioned must not be used fresh from the stables, but ought to be first thrown into a large heap, being turned inside out before the centre is heated dry, and again allowed to ferment for at least one week, when, if found to be only moderately hot, it may at once be mixed with the leaves and made into a hotbed, preferably in a forcing house of some kind. When stable manure only is used, it will sometimes be advisable to turn it a third time, and also before heated dry in the centre, as when the bed is formed too quickly a violent sour heat is generated, this being most injurious to plant life, and, besides, the centre of the bed soon becomes perfectly dry, and consequently gives off no heat. The manure from a cow yard is slow in heating, and is very apt to become suddenly violently hot. When well prepared a bed formed wholly or principally of this material is very sweet and lasting. Tan is also slow in heating, but this may be quickened by the addition of quicklime, say about six bushels to a waggon-load of tan, and this when well mixed with the tan also appears to check the spread of the fungus that usually renders tan so objectionable for heating purposes. Spent hops are apt to become excessively hot, and this must be prevented as much as possible, or much mischief may quickly be worked. Rather shallow beds should be formed, and a little fresh material added occasionally. When frames are stood on hotbeds these should not be kept closed till the heat has subsided somewhat and has become perfectly sweet, or otherwise cuttings may be destroyed wholesale, and seedlings damp off by hundreds.

*Pelargonium and Propagating Boxes*.—During bad weather the stock of these ought to be overhauled and repaired where necessary. The bottoms are the first to fail, and these would last much longer if each were provided with two narrow and fairly stout crosspieces, these keeping the bottoms off the ground, therefore more dry. When the bottoms are badly decayed it sometimes pays to completely reverse them, the top edges being strong enough to have the boards to form the bottoms nailed to them. A certain number of new ones are required every season, and these also ought to be made now. Large clumsy boxes are neither durable or at all handy; neither as a rule do plants thrive so well in them as they do in boxes about 4 inches deep. Most of ours are 24 inches long, 15 inches wide and 4 inches deep, but for *Alternantheras* we prefer to have them 3 inches deep. Nearly all plants transplant most readily from shallow boxes, in which little or no drainage beyond rough leaf soil or old Mushroom bed refuse is used. Where large numbers of softwooded bedding plants, such as *Heliotropes*, *Verbenas*, *Ageratums*, *Iresines*, *Lobelias*, *Konigas*, *Fuchsias*, *Petunias*, and *Marguerites* are required, small or ordinary propagating frames are of little avail, and large deep boxes covered with squares of glass are far more expeditious. Ours are 24 inches long, 15 inches wide, and 6 inches deep, about half the depth being filled with drainage and fine sandy compost, and this leaves sufficient depth for the cuttings without touching the glass, two squares of the latter covering each box. When these are filled and stood on a moist hotbed it is usually necessary to turn or else dry the glasses every morning, or too much moisture accumulates and damping commences. When the boxes are stood on dry beds, staging, or walks, the squares may well have all their edges covered with strips of paper previously pasted over, and these being fixed to both the glass and boxes render the cuttings nearly or quite airtight, and if shaded carefully they strike in a few days.

*Stock Plants*.—In order to secure a good supply of cuttings it may be necessary to at once place the stock plants of *Ageratums*, *Heliotropes*, *Petunias*, *Fuchsias*, and *Zonal Pelargoniums*, more especially *Golden*, *Silver*, and *Bronze* varieties, into a brisk growing temperature, maintained, say, from 60° to 65° by day, and rather less at night, and this should encourage them to break strongly. If the tops are not very hard these may be taken off and struck, but as a rule the young growth strikes most quickly, and continues to make the best progress. A dry atmosphere—that is to say, an overdose of fire heat, is most injurious to the stock plants, this encouraging spindly growth as well as the spread of insect pests, and it is almost needless to add that unless the cuttings are clean they will never become healthy plants. The cuttings being healthy and strong they strike quickly, and in their turn afford first one cutting or top, and several later on. Dwarf *Lobelias* are frequently propagated from cuttings, but it is a mistake to place the stock plants in a strong heat, as this induces the formation of puny shoots, and which are very apt to flower instead of rooting. When the plants are kept in a greenhouse temperature the cuttings are strong, and these strike readily in heat and soon grow into good plants. Where a good number of stocky old plants have been wintered in boxes as we have previously advised, these, if properly attended to and not forced, emit roots from the growths above the soil, and before these roots perish the plants should be pulled to pieces, every little division, when dibbled off thickly in boxes of good fine soil and placed in a gentle heat, soon rooting freely, and before bedding-out time attain a large size. As a rule *Coleuses*, *Iresines*, and *Alternantheras* can be propagated in sufficient quantities after the bulk of harder kinds, including those above enumerated, are cleared out from the forcing and propagating houses or places. Where, however, the stock plants are few in number, striking must be commenced at once in order that the old plants should produce more cuttings as soon as possible, the newly struck plants also yielding their quota. Tops of *Zonal Pelargoniums* of all sorts when taken from plants growing in cold houses or pits do not strike satisfactorily, but after the old plants have been placed in an early vinery or other warm house for a few weeks, say from a month to six weeks, the tops can be safely propagated. These strike better in pots than in boxes.

## THE BEE-KEEPER.

### DRONES AND DRONE COMB.

WHILE I fully recognise the usefulness of drones under various circumstances and states of the hive, it is not because I consider them to be absolutely necessary for other purposes unless to fertilise the young queens; on the other hand many hives are ruined by having an excess of drones and drone comb. It is therefore an important matter for the bee-keeper to know the number of drones necessary to a hive, but it is still more important to know how to regulate that number. In one case a hive may be rendered unprofitable by having 5000 drones, while another would not be affected by double that number: ergo a hive with less than from 65,000 to 70,000 worker cells to be occupied by brood only is too small if a portion of that be drone comb. Therefore a hive to be profitable must have that number of worker



cells irrespective of other worker cells for honey, water, and pollen, at the very least one-third of that number more.

Any amount of drone comb over that in a full-sized hive (provided it is outside the breeding worker combs) will not affect the hive injuriously; but all drone comb, particularly if in the centre of the hive of less dimensions than the above, renders such hive or hives unprofitable. A little thought and calculation should convince anyone that hives containing fewer frames than eighteen of the standard size are too small for practical and profitable work. Bear in mind that a prolific queen can lay 3000 eggs and even more daily, and hives of less capacity than stated above are too small and should be enlarged. By using proper-sized hives it lessens considerably labour in the apiary and adds materially to the profit. One of the great advantages claimed for reversible frames is that by reversing them more breeding space is acquired; proving the system defective, because in full-sized hives no such manipulation is necessary, thereby saving the bees labour in changing the position of the honey and inclination of the cells, as well as the wear and tear of their bodies in doing so, losing valuable time and lessening the harvest of honey.

Provision should always be made the previous summer to have all hives filled with worker comb to the proper quantity necessary for the profitable working of the apiary the following summer. Young queens as a rule perform that work satisfactorily, while old ones do the reverse. Hives with moveable combs admit the regulating the different combs in proper proportions. The straw hive precludes this, but we attain our purpose with them by placing a young queen at the head of a powerful swarm. If I find in the autumnal inspection an excess of drone comb it is pruned out and the bees fed to fill the space. With frame hives having a superabundance of drone combs in the spring it is better to sacrifice one or more hives if healthy, taking their worker comb and putting it in the place of the drone comb removed. The bees of these robbed hives will be profitably used in raising queens, and the queen put to a hive after swarming will make up for any loss sustained by the manipulation, which many bee-keepers might think unnecessary, believing that sheets of comb foundation would serve the purpose without sacrificing any hives. But foundation is not to be always depended upon. Frequently it is transformed into drone comb, and in the centre of the hive too. I am in receipt of a letter from a gentleman, a reader of this Journal, who says he tried brood-spreading last year, and two sheets of foundation he put in the centre of the hive were transformed into drone comb, which rendered the hive useless for the season. The above is not an isolated case. Had that hive been of sufficient size, and the drone comb been on the outside of the others, the result would have been very different. But again, drones raised in the centre of a fairly strong stock may be reckoned on as more vigorous, and are better adapted for successful fertilisation and producing bees strong in constitution. One or more hives should be kept for that purpose, and if early, as it or they should be, the drone comb after the first hatching might be removed to outside and worker comb substituted.

Although I have proved long since that drones issuing from the eggs of a fertile worker or unfertilised queen are perfect and capable of fertilising queens, still I am convinced that highly bred drones produce the best results in the progeny of the queens fertilised by them. Just as attention is paid the rearing of well-matured drones and the suppression of all others, will the vigour of the future workers be kept up, as well as that of the queen in her duties. With a prolific and vigorous queen there is a less desire in the workers to build an excess of drone comb. The desire to do so arises only when the queen is weak or incapable of fulfilling her maternal duties. Some people affirm that drone comb is built specially as store combs. I cannot accept that opinion, because where young fertile queens are, in the height of the greatest glut, few if any drone combs are built. It is

only when queens are aged or some way defective that this occurs. Not only are honeycombs prettier when of worker comb, but the honey in them is often less watery than that in drone comb. But in view of the biggest profit with the least amount of labour and disappointment the bee-keeper must study to keep hives of proper dimensions with drone comb in its proper place and of the right quantity.—A LANARKSHIRE BEE-KEEPER.

### EDUCATION IN BEE-KEEPING.

IN an interesting article this subject was, a few weeks ago, discussed at some length by "A Surreyshire Bee-keeper." Several, however, of the views expressed are in such direct antagonism to those held by many apiarists that it is impossible for me to desist—since no other writer has taken up the question—from considering at length some of the opinions expressed and statements made in the article to which I have referred. It is indeed in no spirit of carping criticism that I write, but rather with the honest endeavour to bring out the views of probably a large section of bee-keepers, and by contrasting them with the views of "A Surreyshire Bee-keeper" and others of his way of thinking make bee-keepers, by reading both sides of the question and duly considering all the points which need attention, to form good and sound opinions upon the matters under discussion. "A Surreyshire Bee-keeper" regrets that bee-keeping is not one of the subjects taught in elementary schools; but is it not very questionable if any benefit would accrue to apiculture even if the Government would allow the subject to be included, which at present it declines to do? If bee-keeping—the production and sale of honey and wax—was to be a means of actual bread-getting, if from it the average man could gain an income sufficient to maintain himself and his family with certainty year by year, the advisability of apiculture being taught in schools would be at once apparent. I am not, however, sanguine enough as to the profits of bee-keeping, at any rate in the future, to encourage any such feeling, but rather desire to teach dwellers in the country districts to consider bee-keeping as an interesting amusement, a pleasant relaxation from daily routine toil, attended with moral, pecuniary, and physical profit than an industry upon which man may safely depend for affording an income sufficient to meet his various wants and requirements. Again, by the introduction of the subject into schools, would it not be the majority of children be called "lessons," and therefore to be avoided whenever possible? A large per-centage of the minority taking an interest in the art would gain a theoretical knowledge which might be of some practical value, but would most certainly have been learned with more pleasure and greater ease when school days were over and the mind enlarged by ordinary teaching is capable of grasping with greater particularity and ease the fundamental truths which must necessarily be learned by all who desire to make bee-keeping a pleasurable study or profitable undertaking. Bee-keepers are born, not made; the seed is there and only requires favourable conditions to cause it to germinate and in due time bear fruit. Associations, articles in papers, and neighbouring apiaries afford these necessary conditions, and produce far more satisfactory results than all the school teaching of years could, in my opinion, hope to effect.

I would now notice in passing the value of the various shows held in many parts of the country, which if conducted properly may indeed be valuable aids to the spreading of knowledge, but not if the result of, say, driving a stock in the presence of a wondering multitude who expect to see the operation performed alike easily and well, is the loss of many bees, owing to some unfavourable influence of the weather or a careless operator who, also by way of encouraging novices, receives a good many stings in the face, which even as he twitches from their effects he denies having received. Why should not a veil be worn? thus showing the absolute impunity with which the operation may be performed by even an unskilled manipulator. If the man driving could be sure of not receiving a sting he can dispense with the veil, but if there is any doubt far better to wear one than discourage those anxious to learn by being attacked and unable to defend himself against an angry swarm of bees. The least want of care at a show gives rise to feelings of distrust and undoes all the good done by previous efforts. Next the following sentence occurs, "No one who thoroughly understands practical bee-keeping can fail to pass for the third-class certificate. All that is required of the candidate is to show his knowledge of manipulation and as much theory," &c. What is practical bee-keeping? Surely, not only showing ability to manipulate, but rather by putting theory and knowledge into practice, gaining profit. Here is the difficulty, for there are many bee-keepers who cannot manipulate a bar hive



who can yet make a considerable profit, and there are also many who can manipulate to any extent and yet who cannot make a profit. Let me quote Professor Root, who in the *American Bee Journal* for 30th December last, says, "Then comes the question of manipulation . . . there is, again, spring manipulation, spreading the brood, and the like. In my opinion we have manipulated many a colony to death. I am getting to think less and less of manipulation."

Now, what I would suggest is that a candidate for the third-class certificate should, for one season at least immediately preceding his examination, keep a diary, authenticated by two respectable neighbouring bee-keepers, in which he should give all points of interest in his management, the value of his stock in the preceding autumn, the amount of food and its value given in spring, time spent in manipulation, weight and form of honey taken from each stock, current expenses, and nett profit after the value of the stock has been brought up at least to the level of the preceding autumn. Then, if after taking into consideration his district and the season, the weight and quality of honey is insufficient or too poor to prove him a capable apiarian, or if on the face of his diary any glaring want of judgment is seen that even if he passes his examination—until he is able by future success to show his ability not only to manipulate but to gain a fair weight of good quality honey from his stocks, thus showing that with increased knowledge of handling his bees he has not neglected to learn how to act so as to gain the greatest profit from putting this ability, knowledge, and theory into practice—the certificate should be withheld. So in each succeeding examination no certificate should be granted without this proof of ability.

Who does not know the man who can "do anything with his bees" but—get a great amount of honey? He is almost proverbial. May we hope that the tendency of the age is to revert to simplicity, to discard many operations now regarded as necessary, and by economy and increased knowledge of the habits of bees, combined with improved methods, enable English bee-keepers to hold their own in the race against the colonies and America, and to produce more cheaply, in greater quantity, and to sell at prices so low that honey will be considered not a luxury for the rich alone, but rather a necessary article of diet; the use of honey being by this means so extended as to counterbalance the lowering prices forced upon us by foreign competition and by the small demand for pure honey and wax at present existing.

These are considerations which have great weight with those who have the interests of bee-keepers at heart, and each one of us is striving to do his utmost for the industry; the means differ, but all are going forward to the same good end. Out of diversity of opinion benefit often springs, and by discussion valuable results may be attained which will fully compensate for all the trouble and labour necessarily attendant upon our endeavours, and if indeed no ill feeling be engendered it will be no matter of regret that the subject has been discussed, but rather for congratulation.—FELIX.

#### BEES ABANDONING A HIVE.

I PLACED a swarm in a straw skep in June, and put it in my garden in a spot well sheltered by a Yew hedge. Here it remained, "apparently doing well," until the end of September, when I moved it to another garden about 300 yards off. I placed it on a raised board with a southern aspect and sheltered by a Thorn hedge. Yesterday (January 16th) I discovered the bees had forsaken, and on further examination found that the hive was full of comb, which latter contained a fair amount of honey; but as for the bees, all that remained of what had once been a very strong swarm was a dozen or so dead ones. Can you help me through your bee correspondents to account for this? It cannot have been wasps, or no honey would have been left. My gardener noticed the bees very busy going in and out of this hive a week or two ago, so it cannot have been empty long.—PLUS.

#### TRADE CATALOGUES RECEIVED.

Edmund Philip Dixon, Hull.—*Catalogue of Garden and Farm Seeds for 1886.*

Richard Smith & Co., Worcester.—*Catalogue of Garden and Flower Seeds for 1886.*

Ant. Roozen & Son, Overveen, Haarlem, Holland.—*Catalogue of Bulbs and Roots.*

W. Cutbush & Son, Highgate, London.—*Spring Catalogue for 1886.*

James Cocker & Sons, Aberdeen.—*Catalogue of Vegetable and Flower Seeds.*

Sutton & Sons, Reading.—*List of Novelties.*

Robert H. Poynter, Taunton.—*List of New Chrysanthemums and Seed List for 1886.*

Samuel Yates, 16, and 18, Old Millgate, Manchester.—*Catalogue of Vegetable and Flower Seeds.*

Richard Dean, Ranelagh Road, Ealing, London, W.—*Catalogue of New and Choice Potatoes, and List of Vegetable and Flower Seeds.*

Little & Ballantine, Carlisle.—*Catalogue of Garden and Farm Seeds for 1886.*

P. J. Kane, Kells, Meath.—*Amateurs' Annual Seed List for 1886.*



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (W. B.).—The address you require is Mr. Thomas Sharpe, Royal Strawberry Gardens, Knowle Hill, Chertsey.

Manure (Young Gardener).—We will endeavour to obtain the particulars you require from our correspondent and reply to your letter in a future issue.

Tan Ashes as Manure (W. S.).—The ashes of tan contain potash, as do the ashes of all vegetable substances, also a small proportion of lime, and as such are useful as a dressing to land to be laid down to grass, having a particularly invigorating effect on Clover. Applied to grass they are very effective in destroying moss, and improve the herbage considerably. The ashes are likely to prove useful to fruit trees, especially Vines, a peck per rod, 30½ square yards, being a sufficient dressing at one time or annually, applying in early spring.

Marechal Niel Rose—Leaves Blackened (John Burn).—The black deposit on the leaves is caused by the plant being infested with some insect, we think scale, though we fail to detect any on the leaves or petioles. The insect is probably on the wood. You could not have a better remedy than softsoap and hot water—a solution of 3 ozs. of soap to the gallon of water, applied at 140° with a syringe. The scale has in all probability come from the Peach tree, which should be cleansed in a similar manner before the buds commence swelling.

Seedling Fern (A. D. S. K.).—The fronds sent are quite distinct from any we have seen if they show the true fixed character of the seedling. We have seen a form similar in the shape and size of the pinnules, but not with fronds so strong in growth and so much divided. It is likely to prove a useful Fern, and we advise you to exhibit a plant at one of the meetings of the Royal Horticultural Society at South Kensington. We will, however, endeavour to compare it with other Ferns of the same type and will give you our opinion in another issue.

Prices of Mushrooms (Profit).—The prices to which you refer are paid to the growers, and necessarily fluctuate according to the supply and quality of the produce. Higher prices are often obtained for Mushrooms in provincial markets than in London, because great quantities of Mushrooms are bought at Covent Garden and sent to the markets of provincial cities and towns. Mushroom-growing pays those persons well who have the proper materials at command and make themselves competent in the work—producing heavy crops from, say, the middle of October till the end of May.

Fuchsias for Bedding (F. J.).—Single varieties are the best for bedding. Dark varieties.—Charming, Wave of Life, Try Me O! Crown Prince of Prussia, Enoch Arden, and Beauty of Kent. Light.—Blushing Bride, Annie, Marginata, Minnie Banks, Erecta Von Novelty, and Beauty of Swanley. For bedding purposes the plants should be well pinched so as to form a dwarf bushy growth, and had strong before planting-out time—the end of May or beginning of June, hardening them well off. The last pinching should take place as soon as the plants become established in the beds, or about the middle of June, in order to have a fine display in August onwards till the occurrence of frost.

Good Pelargoniums (Idem).—Twelve single Zonal Pelargoniums are Ajax, Mrs. Gordon, Mr. H. Cannell, H. M. Pollett, David Thomson, Miss Hamilton, Kate Greenaway, Eurydice, Swanley Gem, Kate Farmer, Queen of the Whites, and Eureka. Twelve good double varieties are Dauntless, Vesta, F. V. Raspail, Lord Mayor, Mons. Thibaut, Emile de Girardin, General Campenau, Henry Cannell, Asa Gray, La Constitution, La Cygne, and La Quintinie. Twelve good Decorative, Show, and "Regal" varieties are Beauty of Oxtou, Duchess of Edinburgh, Mermerus, Kingston Beauty, Dr. Masters, Rubens, Queen Victoria, William Bull, Digby Grand, Duchess of Bedford, Elegantissima, and Mons. Bouchardat.

Covering Outdoor Mushroom Beds (S. L. B.).—As we have not seen the Aston Clinton mats used for the purpose named we are not able to answer your question. When Mushroom ridges are made steep, firm, well combed down, and rounded at the top very little rain can enter them, and if covered with litter, the thickness depending on the heat of the beds and the weather, we have no doubt that well-made straw mats placed over this would prevent rain injuriously affecting the beds and crops. The great majority of beds or ridges are not covered with mats at all, but with litter only, often



very thickly, and combed down with forks to conduct the rain to the ground. We have seen old Mushroom beds thus protected too dry in the centre when removed. Many persons err by making Mushroom ridges too flat for winter production.

**Shaded Passage (F. S.).**—With the exercise of a little taste a very attractive fernery might be made in the position described, and if heated to maintain a night temperature of about 45°, falling to 40° in the winter, it would enable you to grow many varieties of Ferns and be also agreeable. In the summer it could be brightened by a few flowering plants in pots, such as Begonias and Fuchsias; in the spring Hyacinths and Narcissus would render it attractive, and in the winter it would be suitable for Camellias. If your plants are now expanding their blooms are in a warm house we should not remove them, as if frost should occur they might receive a severe check. Camellias are nearly hardy, but even hardy plants are made tender by being grown in a warm house. Lapagerias would grow in such a position as you describe if you desire anything for the roof; and the fernery, if heated, would be safe for the birds, not otherwise during very cold weather.

**Raising Water from a Brook (H. W. Gunn).**—The most economical and effective method of raising water is by a ram, but whether you will have sufficient fall could only be determined by an engineer on the spot. If you write to some hydraulic engineers stating your requirements they would tell you the probable cost when particulars were taken; indeed they alone can give a correct estimate. We do not know anything of the engine or pump to which you refer, and they are probably not obtainable. We have a hot-air pump or engine which raised water for the house, and though it answers is not to be compared with the ram in economy. We do not think second-hand gas piping would be suitable for conveying the water from the reservoir to the garden. We should advise 2-inch cast iron socket pipes, the joints leaded, as the most suitable and economical. The following engineers are competent to execute what you require, and have advertised in our publications. They are mentioned alphabetically:—Messrs. Astle and Co., Park Street, Derby; Mr. J. Blake, Oxford Street Works, Accrington; Mr. Hett, Ancholme Foundry, Brigg; Messrs. S. Owens & Co., Whitefriars Street, London, E.C.; Messrs. J. Warner & Sons, Crescent Foundry, Cripple-gate, London, E.C.

**Rabbits Eating Fruit Trees (W. A. K.).**—It is very injurious, and may be ruinous to allow rabbits or anything else to eat the bark of fruit trees. Pigments applied to the stems are seldom of permanent value. We have tried several, but they only proved effective for a time. Pure gas tar we have known to be injurious to the bark, but mixed with dried powdered clay so as to form a thick paint it is safer and equally efficacious. The best method of protecting the stems is either to fix some fine-meshed hexagon netting round them, or cradles made of strips of wood bound together at the top and bottom with wire. These are easily made, and answer perfectly. Where Furze is plentiful some persons tie this round the stems, others Briars; but cradles made of deal or any other would answer equally well if the strips are placed close enough together. In affixing them they must not press firmly on the bark, this being easily prevented by interposing soft material. If any of our readers are able to communicate the particulars of any methods that have proved satisfactory in protecting the stems of fruit trees from hares, rabbits, and other animals we will readily publish them for the benefit of others. You can scarcely err in giving a good dressing of lime to the new garden. The subsoil should be well broken up, but very little brought to the surface at once. By digging a little deeper each year and adding manure you may greatly increase the fertility of the land.

**Evergreens for Lawn (An Old Subscriber).**—You have made the position quite plain now, and we are confirmed in our opinion that large-growing Conifers or spreading shrubs would be out of place. We think the flower beds are large enough for the lawn, and the Conifers or shrubs should be in proportion to both. As we presume you desire the garden to have an attractive appearance viewed from the end A and B, we should have a pair of Thuia aurea there, C and D Retinospora plumosa, E and F Thuia elegantissima, G and H Cupressus Lawsoniana erecta viridis. With stations of good soil, such as loam, decayed vegetable matter, sand, and wood ashes, the site drained so that water does not lodge near the roots, and these not turfed over, but each plant standing in a small circular bed, would grow freely and have a pleasing appearance without encroaching unduly on the surrounding space. The pairs are alternately gold tinted and green. Cryptomeria elegans, bronzy green, would answer probably as well as the Retinosporas, and you may safely plant either of which you can get the best examples for the money, the prices of all necessarily varying with size and quality. The partial shade will not interfere with their growth. When you order the plants you will not err by sending the plan to a good nurseryman, giving liberty for other kinds of the same character to be suggested in case well-balanced examples of those named cannot be supplied.

**Making Hot-water Pipe Joints—Peas for Seed (A Twenty-years Reader).**—Had we been erecting a boiler we should have endeavoured to arrange that the flow did not come in contact with the fire. You may, however, make the joint or joints required so that they will stand the fire and last in perfect condition as long as the pipe itself. You must make the joints of iron, and this is accomplished by mixing borings, chloride of ammonia, commonly called sal ammoniac, and water together, a very small per-centage of red lead in a dry state may also be included. You must be careful not to employ too much sal ammoniac, or you will destroy the properties of the iron. For two joints a small piece about the size of a Cob Nut broken fine and mixed with the borings will be ample. As much water should be used as will moisten the whole, which will soon become heated, and in a very short time after mixing is ready for use. First of all commence caulking the joint with a piece of good rope well coated with white or red lead about three times the consistency of paint, and then complete the joint with the borings, which must be well hammered up, and they will nest up and become as solid as the metal. Peas, no doubt, will pay very well on good land if the season proves favourable and the seed is well harvested; but to grow them profitably they must be grown on the same principle as field varieties—that is, in rows 12 to 18 inches apart, according to the heights of the varieties. You must be careful to keep the

varieties perfectly true by going through and "roguing" them when in flower. If you do this and guarantee the stock true we do not think you would have any difficulty in disposing of good seed. We have no doubt that if you were to consult some of the large seedsmen about varieties of which they would be anxious to obtain stock, they would undoubtedly supply you with seed and purchase the produce. If you can make such arrangements you would thereby obtain the best market for your seed. We have known hundreds of acres grown on the system indicated in Lincolnshire.

**Names of Fruits.**—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. (*W. L. Bird*).—1, Colmar; 2, Autumn Josephine; 3, Forelle; 4, Ne Plus Meuris; 5, Knight's Monarch; 6, Winter Nelis. The Calanthé is a good form of the variety luteo-oculata, but it does not differ materially from others we have seen except that the flowers are rather more closely placed on the raceme.

## COVENT GARDEN MARKET.—JANUARY 20TH.

NO alteration. A better trade doing at last week's quotations.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	1 0 to 3 6		Oranges .. .. .	100 4 0 to 6 0	
" Canadian ..	barrel 10 0 12 6		Peaches .. .. .	per doz. 0 0 0 0	
" Nova Scotia ..	10 0 12 6		Pears, kitchen ..	dozen 1 0 1 6	
Cobs, Kent .. ..	per 100 lbs. 27 6 30 0		" dessert .. ..	dozen 0 0 0 0	
Figs .. .. .	dozen 0 0 0 0		Pine Apples English ..	lb. 1 0 1 6	
Grapes .. .. .	lb. 1 6 4 0		Plums .. .. .	1/2 sieve 0 0 0 0	
Lemons .. .. .	case 8 0 10 0		St. Michael Pines ..	each 2 0 6 0	
Melons .. .. .	each 0 0 0 0				

### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	dozen 1 0 to 0 0		Lettuce .. .. .	dozen 1 0 to 1 6	
Asparagus .. ..	bundle 0 0 0 0		Mushrooms .. ..	punnet 0 6 1 0	
Beans, Kidney ..	lb. 0 6 1 0		Mustard and Cress ..	punnet 0 0 0 0	
Beet, Red .. .. .	dozen 1 0 2 0		Onions .. .. .	bunch 0 3 0 0	
Broccoli .. .. .	dozen 0 9 1 0		Parsley .. .. .	dozen bunches 2 0 3 0	
Brussels Sprouts ..	1/2 sieve 2 6 3 0		Parsnips .. .. .	dozen 1 0 2 0	
Cabbage .. .. .	dozen 0 0 0 0		Potatoes .. .. .	cwt. 4 0 5 0	
Capsicums .. .. .	100 1 6 2 0		" Kidney .. ..	cwt. 4 0 5 0	
Carrots .. .. .	bunch 0 3 0 4		Rhubarb .. .. .	bundle 0 2 0 4	
Cauliflowers .. ..	dozen 2 0 3 0		Salsafy .. .. .	bundle 1 0 0 0	
Celery .. .. .	bundle 1 6 2 0		Scorzonera .. ..	bundle 1 6 0 0	
Coleworts .. .. .	doz. bunches 2 0 4 0		Seakale .. .. .	per basket 1 6 2 0	
Cucumbers .. .. .	each 0 9 1 6		Shallots .. .. .	lb. 0 3 0 6	
Eudive .. .. .	dozen 1 0 2 0		Spinach .. .. .	bushel 2 0 4 0	
Herbs .. .. .	bunch 0 2 0 0		Tomatoes .. .. .	lb. 0 6 1 0	
Leeks .. .. .	bunch 0 3 0 4		Turnips .. .. .	bunch 0 4 0 0	

### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen 9 0 to 13 0		Evergreens, in var.	dozen 6 0 to 24 0	
Arbor vitæ (golden)	dozen 6 0 18 0		Ficus elastica ..	each 1 6 7 0	
" (common) ..	dozen 6 0 12 0		Ferns, in variety ..	dozen 4 0 18 0	
Arum Lilies .. ..	dozen 12 0 18 0		Foliage Plants, var.	each 2 0 10 0	
Azaleas .. .. .	dozen 24 0 42 0		Genistas .. .. .	dozen 10 0 12 0	
Begonias .. .. .	dozen 6 0 12 0		Hyacinths .. .. .	dozen 6 0 9 0	
Bouvardia .. .. .	dozen 12 0 18 0		Marguerite Daisy ..	dozen 8 0 12 0	
Cineraria .. .. .	dozen 10 0 12 0		Myrtles .. .. .	dozen 6 0 12 0	
Cyclamen .. .. .	dozen 12 0 24 0		Palms, in var. ..	each 2 6 21 0	
Cyperus .. .. .	dozen 4 0 12 0		Pelargoniums, scarlet, doz.	6 0 9 0	
Dracæna terminalis, dozen	30 0 60 0		Poinsettia .. .. .	dozen 12 0 18 0	
" viridis .. ..	dozen 12 0 24 0		Primulas, single, dozen	4 0 6 0	
Erica, various .. ..	dozen 12 0 24 0		Solanum .. .. .	dozen 8 0 12 0	
Euonymus, in var.	dozen 6 0 18 0		Tulips .. .. .	12 pots 6 0 9 0	

### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. ..	12 bunches 2 0 to 4 0		Lapageria, red ..	12 blooms 1 0 to 2 0	
Acacia (Mimosa), Fr., per	bunch .. .. .	0 6 1 0	Lilium longiflorum, 12 blms.	9 0 12 0	
Arum Lilies .. ..	12 blooms 5 0 8 0		Marguerites .. ..	12 bunches 6 0 8 0	
Azalea .. .. .	12 sprays 1 0 1 6		Mignonne .. .. .	12 bunches 3 0 6 0	
Bouvardias .. ..	per bunch 0 6 1 0		Pelargoniums, per 12 trusses	1 0 1 6	
Camellias .. .. .	12 blooms 3 0 6 0		" scarlet, 12 trusses	0 9 1 0	
Carnations .. ..	12 blooms 1 0 3 0		Poinsettia .. .. .	12 blooms 4 0 8 0	
Chrysanthemums 12 blooms	2 0 4 0		Roses (indoor), per dozen	2 0 6 0	
" 12 bunches	3 0 18 0		" Tea, French ..	dozen 0 9 1 6	
Cyclamen .. .. .	doz. blooms 0 4 0 9		" Red, French ..	dozen 2 0 4 0	
Epiphyllum .. ..	doz. blooms 0 6 0 9		Tropeolum .. ..	12 bunches 2 0 3 0	
Eucharis .. .. .	per dozen 4 0 6 0		Tuberose .. .. .	12 blooms 1 6 3 0	
Gardenias .. .. .	12 blooms 6 0 18 0		Tulips .. .. .	dozen blooms 0 9 1 0	
Hellebore .. .. .	doz. blooms 0 6 1 0		Viols .. .. .	12 bunches 1 0 1 6	
Hyacinths, Roman, 12 sprays	1 0 1 6		" Czar, Fr., ..	bunch 1 6 2 0	
Lapageria, white, 12 blooms	2 0 3 0		" Parme, French, per	bunch .. .. .	4 0 6 0



### THE FLOCK.

A DAY or two before writing this article we went to see what provision of shelter for early lambs had been made by a shepherd to whose care a valuable breeding flock of some 300 ewes had been given. All we found was an enclosure



of thatched hurdles with a little penthouse in one corner, formed by laying a thatched hurdle upon two others set upright in the ground, under which lay the first lamb with the ewe. This enclosure was in a paddock on the south side of a thick belt of trees, and the position was the only good thing about it. Now this shepherd had assured us that he was master of his business, yet he had only thus made use of ample means and assistance placed at his disposal. Prompt measures were taken after an inspection to provide a proper lambing fold in this way:—A circle of ample size to take in all the flock was made with unthatched hurdles set upright in the ground, a portable swing gate and posts being set in the circle of hurdles at the best point for ingress and egress. Outside this circle and 2 feet from it came another line of hurdles, the space between the hurdles being filled closely with straw. Upon the top of this snug enclosure rested the ends of thatched hurdles, the other ends being fastened to an inner line of posts raised sufficiently high to give an outward slope to the roof so as to throw any water falling upon it outside the fold. Partitions of thatched hurdles were made snug little pens under the roof, and we had only to spread straw upon the grass for bedding to render our fold complete. Inside it there are troughs for mixed food, consisting of chaffed hay and Barley straw slightly salted, a little bran, crushed Oats, and a liberal mixture of cut Swedes, with racks for Pea and Oat straw uncut, of which the ewes are remarkably fond. The fold opens into a fine piece of pasture some thirty acres in extent, specially reserved for the lambing, and the flock will be let out upon it whenever the weather is favourable, trough and rack-feeding also being regularly practised there. Some very good and commodious racks are made there by enclosing the trunks of trees with a few hurdles, and filling the space between the hurdles and tree with whole straw. The fold and pens will be kept well supplied with plenty of fresh dry straw for bedding, and all possible care taken to keep the flock as quiet and comfortable as possible.

A moderate quantity of cattle Cabbages may be given daily if they have been so well stored as to be unfrozen, but we strongly deprecate the use either of frozen Cabbage or roots, such food tending materially to a loss of vitality, and so frequently causing abortion. Ewes should always be kept in fair condition, and for a few weeks before the lambs are due a full allowance of the diet we have enumerated is highly important, because it is then especially that the nutriment afforded by the food goes chiefly to increase the size and vigour of the *fœtus in utero*, and not to the fattening of the ewe. But it must be remembered that if nourishing food given liberally then does not fatten, it certainly strengthens the parent, and thus lessens the difficulty of parturition. A weakly underfed ewe is in much danger during parturition. There is often excessive straining followed by inflammation, owing to debility.

In a well-managed flock most of the ewes pass through the lambing quite unscathed, but there are certain cases always in which special care is necessary, but there is none that ought to prove fatal. We know full well that at one time a certain per-centage of loss from straining, inflammation and abortion was regarded as quite within the ordinary course of things, but now we know how needless such losses are. For all cases of straining the right and safe course of action is for the shepherd, if necessary, to extract the lamb from the ewe—a little practice soon enables him to do this quickly—then to carefully and gently sponge the vagina with warm water, and then to apply a mixture of seven parts of olive oil, and one part of Calvert's carbolic acid with a female syringe. We use an ordinary pewter syringe, one, or at most two, applications being all that is required, for it acts like a charm, and the ewe is free from all violent pain, straining ceases, and food is soon taken again. Violent straining sometimes causes protrusion of the uterus, especially in old ewes. We never allow sheep so affected to breed again, and if the protrusion is excessive a piece of stout

twine is passed round it as high up as possible and tied tightly. The ewe apparently suffers neither pain nor inconvenience, and in a short time it decays and falls off; the ewe is then fattened and passed on to the butcher. Swollen udder seldom occurs, but it may do if a ewe loses its lamb and it cannot be induced to take another. The remedy is as simple as it is efficient. Equal quantities of Eau de Cologne and olive oil poured into the palm of the hand and rubbed gently and persistently over the swollen udder soon softens it, so that the milk can be drawn from it, and there is very little if any subsequent difficulty.

With care, gentleness, and watchfulness, success should attend our charge. Results now, however, are undoubtedly influenced by our treatment of the ewes throughout the year. An undue strain was put upon many a flock last summer owing to a want of grass upon the meadows, or owing also to the lambs being kept late with the ewes. We cannot venture upon such rash measures with impunity, and it is probable that there will be weakly lambs and losses among ewes now in such flocks.

#### WORK ON THE HOME FARM.

Advantage has been taken of the frosty weather to cart manure on to the land not yet to be ploughed, but to be put into large heaps and covered with soil to be ready for the root crops. We cling to the use of farmyard manure for roots because of the moisture as well as nutriment which it affords the young and growing plants, enabling them as it does to pass unscathed through periods of drought to which they would otherwise succumb. But we only use enough of it to fill the space immediately below the roots, the soil generally being enriched with artificial manure. The cows and young stock always to be found upon the home farm afford a supply. On other farms it is with pigs and not bullocks that we manufacture our manure for roots, for bullocks have so seriously fallen off in value that it is only very choice well-bred beasts that grow fast and come to early maturity that answer now. Some writers hopefully predict better times, but we as yet fail to see upon what their calculations are based.

We continue passing pigs in large numbers quickly through our yards. Most of them enter as store pigs and pass out again in a few weeks as porkers, plump, compact, and fit for the butcher. Breed tells very much in this work, compact chubby animals being much more profitable than those of larger frames. These latter are held in reserve for bacon hogs, and they are forced on quickly, for we have no faith in keeping them, or, in fact, any animals kept for profit a day longer than is necessary. Pig-keeping and dairy farming generally answer well, and a certain number of pigs should always be kept with the dairy herd on the home farm. We have increased our number of pigs this winter to meet an emergency. So much Barley was exposed to heavy rain after it was ripe that the grain became discoloured and prices ruled low—so low that it became evident it would answer our purpose to convert as much of the inferior grain into pork as we could, and so dispose of it. No special breed need be recommended for this purpose. There are plenty of good local-bred pigs everywhere to be had if we search for them, so that there need be no special outlay to procure good ones. It is for this, among other reasons, that pig-keeping may be taken up or left off with such profitable celerity. The matter may be one of weeks or months only. Nor need we go to the expense of building model stys for them; shelter from rain, plenty of clean straw, and good wholesome food being all they require.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		Rain
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1886.	Inches.	deg.	deg.	N.	deg.	deg.	deg.	deg.	deg.	In.
January.										
Sunday .....	30.088	32.2	31.4	N.	37.1	56.2	29.2	46.9	25.4	0.207
Monday .....	30.766	37.6	37.2	S.E.	36.6	39.2	31.7	40.3	30.9	0.112
Tuesday .....	30.144	29.5	28.8	N.	36.3	38.9	28.7	58.2	25.6	0.206
Wednesday .....	29.310	42.6	42.3	S.W.	36.0	44.2	29.1	51.2	30.7	0.170
Thursday .....	29.819	38.3	35.5	N.	36.3	41.3	34.9	67.4	29.6	—
Friday .....	29.821	40.3	39.0	S.W.	36.2	46.8	34.8	51.2	24.8	0.182
Saturday .....	29.720	33.8	32.2	W.	37.2	47.1	32.4	63.8	27.7	0.294
	29.667	36.3	35.2		36.6	42.0	31.0	54.1	27.8	1.171

#### REMARKS.

- 10th.—Fair early, slight fog in afternoon, and a little snow from 5 P.M.; total depth at 9 P.M. half an inch.  
 11th.—Damp and rainy all day, thawing, cold clear night.  
 12th.—Bright, fine, and frosty morning; cloudy afternoon, with a little snow; rain in evening; wet night.  
 13th.—Wet early; westerly squall at 10.45 A.M., with heavy sleet and rain; fair afternoon.  
 14th.—Windy and cloudy till 11 A.M., fine and bright after.  
 15th.—Dull morning, wet afternoon and evening, fine clear night.  
 16th.—Fine and fresh; squally in evening, with rain at 10 P.M., and heavy rain at 10.30 P.M.  
 Very changeable week, with rain, snow, and sleet, and sharp changes of barometer.  
 —G. SYMONS.





## COMING EVENTS

28	TH	Royal Society at 4.30 P.M.
29	F	
30	S	
31	SUN	4TH SUNDAY AFTER EPIPHANY.
1	M	
2	TU	
3	W	Society of Arts at 8 P.M.

### GREENHOUSE RHODODENDRONS.

**C**ULTIVATORS are indebted to the Heath family for some of their most useful and handsome plants, and the Rhododendrons, Azaleas, and Ericas alone would take a foremost place in floral importance. Rhododendrons particularly present a variation and beauty that cannot be surpassed in any one genus, and in some respects they are unequalled. The shrubbery department of gardens may be said to have been revolutionised by the introduction of hardy Rhododendrons, and beds of these plants now occupy an important position in most establishments wherever the soil is in any degree suitable for them. The North American *R. catawbiense* was a grand acquisition, and when the hybridisers had brought their skill to bear upon this, *R. caucasicum* and *R. arboreum*, a race of noble shrubs was obtained that speedily found innumerable admirers. Who can visit such gardens as Baron Schröder's at Egham (where a grand collection of these is now grown), at the time the plants are in flower, without being both surprised and delighted at the rich colours furnished by the bold trusses of flowers with which the shrubs are loaded? In the early summer months thousands of gardens are rendered gay with these Rhododendrons, from the warm southern counties to Lancashire and Yorkshire, and whether in formal beds, bold clumps, or clothing the sides of elevated ridges as at Chatsworth, they are alike beautiful, though the last-named appears more natural and picturesque.

Another magnificent group comprises the natives of the lofty Himalayas, the stately *R. argenteum*, *R. Aucklandi*, *R. Nuttalli*, and many others which Sir Joseph Hooker discovered in the Sikkim district, and that have since become the favoured occupants of many conservatories and winter gardens; or in sunny Devon and Cornish gardens, reproducing out of doors the attractions of the Indian Alps. Some gentlemen have made specialties of these, as the Hon. and Rev. J. T. Boscawen and the late esteemed J. H. Mangles, Esq., and their collections have become widely famed in the horticultural world.

A third group must be added containing the "greenhouse" Rhododendrons, totally distinct from both the foregoing, and, if of more lowly growth and less imposing appearance, they are certainly equally charming and useful. We owe the two preceding types chiefly to North American and Himalayan species; but now, turning to the tropical Malayan Archipelago, we find amongst the luxuriant vegetation of those islands several Rhododendrons widely differing in characters. In Borneo especially they are very numerous, growing upon the branches and stems of trees like the epiphytal Orchids in the dense forests which clothe some of the mountains to great elevations. In Java, Malacca, and other districts are also found several species that have been employed to excellent advantage by the hybridiser, and have assisted in producing the charming race of plants now so well known. Amongst those which have played a prominent

part in the work of improvement is *R. javanicum*, which seems to have been the first introduced to this country, being one of those which the traveller, Mr. Thomas Lobb, collected in 1847 for Messrs. Veitch & Sons, then of Exeter. It was first found or noted by Blume, by whom it was named *Vereya javanica*, a title since sunk in *Rhododendron* as not being separated by characters of sufficient importance to deserve generic rank. To the natives it was known as *Gaga Mirha*, and it was moderately abundant in forests at an elevation of 4000 feet. In growth the plant is naturally somewhat straggling, and not of the bushy habit distinguishing the American species. Its flowers are borne in dense heads, are shallow or Azalea-like in form,  $2\frac{1}{2}$  inches in diameter, of a dark orange-scarlet colour, and purplish in the centre. It has been especially valuable for the richness of its colour, which has been imparted to numbers of handsome descendants.

About the same time—namely, in 1848—was introduced another species, *R. Brookeanum*, from Borneo, the flowers of which are rather more tubular than *R. javanicum*, and of a bright yellow colour. Mr. Hugh Low gives an interesting account of this plant in his work on "Sarawak," thus describing the finding of what was justly considered a floral treasure:—"I shall never forget the first discovery of this gorgeous plant. It was epiphytal upon a tree which was growing in the water of a creek. The head of flowers was very large, arranged loosely, of the richest golden yellow, resplendent when in the sun. The habit is graceful, the leaves large, the roots are large and fleshy, not fibrous, as those of the terrestrial Rhododendrons. It is the least common of all the genus in the island, and has many varieties, which differ in having larger flowers and leaves, the former of a more or less red colour. Very high and large trees in damp forests are its favourite haunts." From this, crossed with other forms, have been obtained most of the yellow-flowered hybrids, and the combination with richer colours has produced many beautiful intermediate tints.

Still another year later—1849—the lovely *R. jasminiflorum* made its appearance, and at once became a favourite with plant lovers. Writing some time ago Mr. John Smith, the ex-curator of the Royal Gardens, Kew, remarked concerning its *début* as follows:—"At the truly splendid exhibition of flowers at Chiswick in 1850 few plants excited greater attention among the visitors than this from the nursery of Messrs. Veitch at Exeter. Many excelled it in splendour, but the delicacy of form and colour of the flowers, and probably their resemblance to the favourite Jasmine, attracted general notice." That this encomium was amply deserved can be easily imagined, for even now there are few stove plants to equal it in graceful beauty. The long tubular flowers are sufficiently like the white Jasmine to render the title a suitable one, but they are larger, and though generally white, there is sometimes a tinge of rose that serves to heighten their charms. Like the others, the plant is rather deficient in compactness of habit, but it has been considerably improved in this respect by continued crossing with that object in view. It is a native of Malacca, where it was found by Mr. T. Lobb at an elevation of 5000 feet above sea level.

Of comparatively recent introduction is *R. Lobbi*, which was exhibited and certificated at South Kensington in October, 1869. It is a native of Borneo, and has been thought by some to be identical with *R. longiflorum*, a species described by Lindley in the London Horticultural Society's Journal. It has bright crimson flowers, with a tube somewhat like *R. jasminiflorum*, but not quite so long, and they are borne in dense heads at the ends of the stems or branches. The leaves are oblong, bright green, and arranged in whorls round the stems. I do not know the precise habitat of this species, but *R. longiflorum* is found "near Sarawak on high trees in low damp jungles." To these might be added *R. Edgworthi* and *R. ciliatum*, which have also been employed in the hybridising, but as



they are of minor importance as regards the effects produced the mention of their names will suffice.

Such distinct plants had not been long in the hands of the introducers before some attempts were made to effect crosses between them, and we believe that the first results fell to the share of Mr. Taylor, who succeeded in obtaining several intermediate forms, one of the earliest of which bears his name. Several others followed, and the greenhouse hybrid Rhododendrons quickly took a place amongst established favourites. Diversity of colours has been obtained, lovely flowers of wax-like substance in dense umbels of ten to fourteen; the plants have been gradually rendered more bushy in habit, and all that close attention to their improvement could ensure has been effected. The latest additions are chiefly due to Messrs. J. Veitch & Sons' foreman, Mr. Heale, and for several years past a number of novelties has been brought before the public each season. In the past six years about thirty hybrids have been certificated, and we may expect many more yet, for large numbers of seedlings have been raised, the best of which are being continually selected.

Tracing the results of the intercrossing of the species named, and again with the hybrids so raised, we find that they have proved a prolific source of handsome additions to these beautiful plants. *R. javanicum* and *R. jasminiflorum* were crossed, and produced a number of seedlings, from amongst which an especially fine form was selected and named Princess Royal, a hybrid that has been of inestimable value in after-crossings. By fertilising it with pollen from *R. Lobbi*, and also by making the latter the seed-bearing parent, some of the best hybrids of the group have been obtained, such, for instance, as Princess of Wales, Duchess of Teck, Duchess of Edinburgh, Prince Leopold, and Duchess of Connaught, all charming hybrids. Princess Royal has also been crossed with *R. Brookeanum*, and from this union was obtained Princess Alexandra. *R. Lobbi* has been similarly crossed with *R. jasminiflorum* and produced Princess Helena, which in its turn was crossed with *R. Brookeanum gracile*, and yielded Crown Princess of Prussia and Princess Thyra.

These may be described as the preliminary stages in the improvement of greenhouse Rhododendrons, for since the appearance of the most recent of those previously named—*i.e.*, Duchess of Connaught, which was certificated in 1881—numerous additions have been made to their numbers. Referring only to those that have been similarly honoured to that first mentioned, we have no less than twenty-eight, comprising the following, all of which have been exhibited by Messrs. J. Veitch & Sons. In 1882 eleven were certificated, and amongst them were the trio of double forms, *balsamiflorum*, *balsamiflorum album*, and *balsamiflorum aureum*, which are salmon red, white, and golden respectively. These were the first distinctly double Rhododendrons of this group, and the flowers are so beautifully formed that would prove invaluable for buttonholes or bouquets. The other single varieties of the same year were Aurora, orange; Excelsior, large buff, with red stamens (from Princess Royal  $\times$  *javanicum*); Favourite, a soft pink; Monarch, bright orange (from Princess Alexandra  $\times$  Duchess of Edinburgh); Sir Beauchamp Seymour, pale buff, stamens rose-coloured; Sir Garnet Wolseley, reddish salmon, very large; Star of India, buff; and Queen Victoria, bright yellow, very pretty and of good habit.

The years 1883 and 1884 brought out six and four hybrids each, as follows:—In the first-named year Baroness Schröder, dark yellow and red stamens; Brilliant, rich scarlet, very large; Diadem, orange scarlet; Princess Christian, pale pink, charming; Scarlet Crown, orange scarlet; and Triumphans, brilliant scarlet. In 1884 Conqueror, large flowers, dark scarlet; Empress, salmon rose; President, yellowish buff, pink margin; and Princess Beatrice, pale creamy buff tinged with rose. Last year no less than nine seedlings were certificated, and all well deserved the honour. They were—

Apollo, scarlet, the flowers in very large heads of ten to fourteen; Cardinale, rich scarlet; Curtisi, crimson; incarnatum floribundum, buff and rose; Indian Yellow, clear yellow; Militaire, scarlet; Minerva, soft yellow with red stamens; Pearl, white and rose tinted (from Princess Royal and Aucklandi); and Teysmanni, bright yellow, the flowers very neat in form. It will be seen from those noted that a considerable range of colours is now secured, but no doubt other tints will be added from time to time, and if a few other species could be found of different colours some valuable additions might soon be expected.

These notes have extended to such a length that a few remarks on culture must be reserved for another contribution.—L. C.

### AMONG THE VEGETABLE NOVELTIES.

IN continuation of my notes which appeared some months ago, I have a few words to say about the Brassicas, which I was not then in a position to express. I have been very glad to see notes about vegetables appearing every now and then in our Journal, for they are highly appreciated by me, who am only a vegetable and fruit grower. Flowers truly I love, but I have come to the conclusion that in their cultivation I shall never be very celebrated.

Chou de Burghley is no longer quite a novelty, but the strain is improved. Mr. Gilbert kindly sent me some plants from which I am now cutting heads singularly free from the rather strong flavour of the earlier stock. I find them very delicate and Marrow-like.

Chou de Gilbert is another little stranger from Burghley, and if Mr. Gilbert goes on like this he will be the father of a numerous family of Chous. This is an improved Brussels Sprout, being free from the strong flavour of the latter. The strain being hardly settled yet, I have not had a very good opportunity to judge, but if from the few I have I can form a just estimate, I should say that this novelty will be a great acquisition. Burghley Pet Cabbage takes after its worthy parent the Chou in flavour, but is more dwarf, hearts in quicker, and is a Cabbage without the Broccoli shoots inside.

Brussels Sprouts I tried in three varieties—Daniel's Colossal, Webb's Matchless, and Aigburth, and I must give the palm to the last for everything. To those, however, that prefer the small buttons I cannot recommend it, for the sprouts are large and solid.

Celery—I tried Northumberland White (which I obtained from Stua't & Mein), Manchester Red, and White Plume. The first, which is a large kind, is excellent in every way. I have had very fine sticks as brittle as glass, and I find it of very good flavour and hardy. Manchester Red is good, but nothing out of the common. White Plume will do for soup in autumn and until snow and sharp frost come, and then where is it? I have several rows, but there is very little trace of them left, although they were partly earthed up.

Lyon Leeks are fine and of good quality. It is a vegetable I like, and is extremely beneficial to many persons.

To those now giving in their orders for seeds I would say, Do not omit Duke of Albany Pea and Victor Potato. Both are sterling novelties with which every grower will be pleased both for quality and quantity.—H. S. EASTY.

### WINNING ROSES.

IN his interesting article in the "Rosarian's Year Book" on "Winning Roses," Mr. T. B. Hall carries on the pleasant series of Rose selections based upon actual practice at the exhibitions of the last two seasons; and though the varieties enumerated do not stand quite in order of merit, owing to their being arranged only according to the number of blooms shown, independently of the number of plants from which these were obtained, still the averages can easily be struck for comparison with the former lists of Mr. Whitwell and Mr. Mawley. Of course, as Mr. Whitwell pointed out in his article in 1884, to take absolute averages would be most misleading; for instance, one result of such a proceeding in the present case would be to place Mabel Morrison in the first twelve, a position it certainly cannot claim to occupy, in the south at any rate, although in wet weather it occasionally travels safely to a show. But by taking into consideration the proportion of the number of blooms shown to the number of plants grown, in the case first of those Roses exhibited not less than thirty times, then of those shown not less than twenty, fourteen, ten, and seven times respectively, it will be seen that Duchesse de Vallombrosa heads the poll by a large majority, with



Captain Christy as a good second, and an unexpected fourth in Louis Van Houtte. The excellent figures of the light Roses all through, probably owing to the two hot seasons, are very noticeable; thus Madame Lacharme, Madame Hippolyte Jamain, Princess Mary of Cambridge, Merveille de Lyon, Violette Bouyer, and Mons. Noman have all good records, the last-named variety especially making a wonderful success for a Rose generally considered shy as a cut-back.

Naturally the bulk of the first forty-eight is identical with the selections of recent years; but there are included several less generally grown varieties, mostly dark Roses, which are worthy of notice. Of these Dingée Conard appears fourteenth in the list; and though sent out ten years ago by E. Verdier, does not seem to have been widely cultivated. It is, however, a beautiful and well-finished Rose, between Charles Lefebvre and Madame Victor Verdier, of moderate size, while its rich colour stands well. No. 23 is another 1875 variety (Cant's Prince Arthur), a most useful all-round Rose, deservedly well placed, but one which is surprisingly seldom recommended. It is commonly described as a dark Général Jacqueminot, which it resembles in most respects except in colour, but it is a better flower; and as a free dark Rose which is deep-petaled and does not burn it is very dependable. Duke of Connaught again (Paul 1876), which comes out twenty-eighth, has been exceedingly reliable in the late hot summers; and though its raiser has emphasised the fact of its not being of great size, still it is large enough as a rule for practical purposes, and is a good traveller.

No. 38 is Madame Ducher's promising seedling of 1880 (Rosieriste Jacobs), a free-blooming dark Rose of fair size and good shape, with good lasting qualities; in colour, coming between Horace Vernet and Duc de Wellington, the latter of which it closely resembles in habit of growth. The last of the dark Roses not included in former forty-eights is Lord Macaulay (W. Paul, 1863), forty-first in order, which is also probably often left out of fancy selections from being considered rather small; but though beautiful in colour it is a somewhat stunted grower.

In addition to Mabel Morrison (No. 44) above mentioned, which is still one of the prettiest white garden Roses, No. 45 is Madame Sophie Fropot (Lévet, 1876), a very vigorous and useful big-petaled pink Rose, which at one time was decried as too thin, but it has proved a very useful exhibition flower, and it does not fade lilac as so many pink Roses do. Lælia (or Louise Peyronny), a useful light rose-colour if it were a more vigorous grower, is placed forty-seventh.

Of the first forty-eight, Marie Rady averages the worst, but is notoriously capricious; as are Emilie Hausburg, Annie Wood, Comtesse de Serenye, and Star of Waltham. But the poor display afforded by several well-known names tends to strengthen the impression made by Mr. Whitwell's 1884 list, that a good many varieties are living on their reputation, so to speak. Thus it appears necessary to grow Madame Victor Verdier at the rate of four plants for each flower, and to insure a bloom of Sénateur Vaisse good enough to show in a winning stand even more trees seem requisite. Maréchal Vaillant is not quite so expensive, but John Hopper, Duchesse de Caylus, and Duc de Rohan are hardly any better; while it takes six plants of Pierre Notting to furnish a solitary flower. That Thomas Mills should beat the record, and only supply three blooms from thirty-two plants, seems surprising in a Rose so commonly recommended for the north, and which ranks twenty-second in Mr. Whitwell's 1884 list; but presumably in spite of its splendid petal it is not full enough to stand a journey anywhere in such a baking summer as that of 1885. The heat is also enough to account for the relatively low positions of the dark Roses that are liable to burn, such as Prince Camille de Rohan, Abel Carrière, &c.; while E. Y. Teas is not a strong grower, and probably would not succeed so far north so well as in the southern counties; but on the other hand the excellent average of Xavier Olibo should be noted.

The recent Ulrich Bruuner, Alfred Dumesnil, and Comtesse de Paris all give a good average, and are all first-rate Roses; while excellent evidence of Mr. Hall's well-known skill as a cultivator is afforded by the number of blooms which he succeeded in staging of Lord Bacon, Lady Mary Fitzwilliam, and Violette Bouyer from newly planted trees.

On page 52 of the "Year Book" Mr. A. Hill Gray mentions the pretty Tea-scented Comtesse de Caserta, sent out by Nabonnand in 1877, which is one of the freest-flowering of Roses even in these unfortunate islands. A useful mode of treating it to obtain late flowers in autumn is to put a few buds as soon as they can be got in June upon dwarf Briar stocks, upon which they start into growth immediately, and furnish abundance of bloom by September. The fact of the flowers not being very full is in favour of their opening well during damp autumnal weather; and the petals being large they make capital long buds for cutting.

Of the other Tea Roses here described by Mr. Gray as not gene-

rally grown in England perhaps Olympe de Trecinay (Damaizin, 1859) is only Madame Berard under another name, since in course of long periods things invariably get re-named, and there is good authority for stating that Madame Berard was first sent out A.D. 1370; Marietta de Besobrasoff having been distributed (presumably by an ancestor of the present prolific raiser of the same name—Nabonnand) nearly 200 years earlier.—(*Gardener's Magazine*, vol. xxviii., pages 368, 384.) Monplaisir (Guillot, 1868) is not likely ever to be popular over here, as it so constantly comes quartered, and is almost always coarse and wanting in finish in this climate.

It would be interesting to learn whether the lines which Mr. Gray gives about the sepals of the Rose were quoted to him in Spanish or in Latin. The celebrated botanist, Robert Brown (whom Humboldt styled "*Botanicorum facile princeps*"), cited, as showing how observant the old monks were, the following Latin lines which he had come across in some old book in the British Museum, and which describe the peculiarity of the Rose calyx much as Mr. Gray gives it:—

"Quinque sumus fratres, sub eodem tempore nati;  
Duo barbati, duo sine barbâ creati;  
Quintus barbatus, sed dimidiatus."

Which may be thus freely translated—

"Five brothers we, together born,  
Two bearded, two beards ne'er have worn;  
The fifth a beard wears on one cheek,  
The other being shav'n and sleek."

—T. W. G.

### STRAWBERRY PLANTS IN WINTER.

IN respect to the methods of preparing Strawberry plants for forcing and preserving them during the winter there does not appear to be (if we refer to the remarks made by "*A Kitchen Gardener*" and "*A Northerner*," pages 534 and 584, last vol.), that unanimity of opinion which might reasonably be expected after years of experiment and practice in these simple operations. It would seem as though we had not yet discovered any really sound or safe principles on which to rely with confidence; for while one correspondent advocates a somewhat dry treatment during the resting period, the other recommends that the plants should never be allowed to become dry, and for this reason he advocates the practice of plunging the plants out of doors in an upright position either in ashes or leaves. That the Strawberry plant is perfectly hardy in the usual acceptation of the term everyone will readily admit, but its worst enemy in winter is not cold but damp; and if we keep this fact in mind I think we shall decide that the method recommended by "*A Kitchen Gardener*," of simply laying the plants on their sides, is on the whole less objectionable than that of plunging them in an upright position, because the plants are by such means kept in a condition more nearly like that to which they are naturally accustomed. No doubt, when in spring, as the sun's power increases, and especially when drying winds prevail, the drying process would soon become extreme and prove injurious unless the plants were occasionally watered, but through the winter months the plants so situated never become excessively dry, because they absorb sufficient moisture through the pots to keep them in a healthy condition.

This practice is, however, open to two objections which, although not serious, are sometimes inconvenient and difficult to counteract. The first is that when the pots are thus laid down three-fourths of their surface, where the best roots are situated, are fully exposed to the weather, and although the Strawberry plant is perfectly hardy under natural conditions, yet when the soil in the pots is wet and severe frosts occur, the whole are liable to be frozen into complete balls of ice, and when a thaw takes place not only are many of the pots destroyed, but the plants must also suffer seriously from such unnatural treatment. Of course they may be protected by a covering of dry straw, fern, or other litter, but here arises the inconvenience attending the method, and not only this, but sudden frosts cannot always be foreseen, and the necessary protection may not be given; and, again, in long-continued frosts this very protection may, and sometimes does, prove a source of mischief by partially blanching and weakening the plants. The second objection is not so important, being simply a question of space, which in the winter season when comparatively few plants are exposed out of doors is not difficult to provide, and yet where from 3000 to 5000 plants are prepared it is not always convenient either to find a suitable position or to give that extra attention which they require when so arranged.

On the other hand the practice advocated by "*A Northerner*" of plunging the plants in an upright position either in ashes or leaves, while it effectually overcomes the evil of undue exposure of the roots already referred to, still it is open to a more serious objection. In very dry positions or in dry winters no harm may ensue, but in damp situations or in wet winters this practice often leads to most disastrous results, by the plants being kept in a constantly wet and soddened



state during the period of rest, when comparative dryness should be their condition. Some years ago, in order to test this practice, I subjected a portion of my stock to this treatment for three successive years. The first and third winters were excessively wet, and although the plants in the autumn were good in every respect equal to those stacked in the usual way on their sides in ashes, yet in the spring they presented a very different appearance, the majority of them being yellow and sickly, while many of them were quite decayed. The second winter was dry and severe, and the plants so treated were in spring quite equal in health and vigour to those stored in the ordinary way, proving most conclusively that continued wet was the cause of the evil. When plunged upright, and when frost and rain quickly alternated, I have frequently seen the surface of the plants covered with ice level with the rims of the pots, the crowns being encased therein—not a very comfortable or safe condition I imagine for even the hardiest plant to be placed in.

These experiments convinced me there was no advantage to be gained by plunging them in an upright position, but rather the reverse. I therefore continue to stack them in ashes, and have never failed from so doing. This old-fashioned method commends itself in several ways. It is quickly done, they occupy but little space, the foliage and crown of the plant is freely exposed while the roots are fully protected, and when so placed they need no additional protection even in the severest weather, plainly proving that the Strawberry plant is perfectly hardy when comparatively dry. When stacked in this manner the soil and roots during winter appear to absorb just sufficient moisture from the damp ashes to sustain the plants in perfect health, and in spring when they become dry they should be taken from the stack, the ashes levelled, and the plants placed thereon and watered when necessary. I can fully endorse the statement of both correspondents respecting the inadvisability of very early forcing, nor is there the least advantage gained by placing them either in frames or cold houses. When taken indoors they should be gently excited into growth, gradually increasing the temperature till the fruit is coloured, when a somewhat cooler temperature and dryer atmosphere is desirable.—T. CHALLIS.

#### ANALYSIS OF SOIL.

MR. TAYLOR rather disappointed me in his answer to my questions. I gather from it he cannot analyse the soil himself, consequently he would, in case Vines did not thrive, only guess at the treatment required, although he would not do much harm with diluted cow urine, as it contains a large amount of nitrogenous food in addition to potash. I have an elementary knowledge of chemistry, but it seems to me to lose half its value through ignorance of analytical chemistry. Some time since the late "Single-handed" gave an instance of how he was deceived by some turfy loam used for potting, a little knowledge of analysis would have prevented the mistake. Mr. Taylor himself when at Longleat applied lime to his Vine borders, and if my memory is correct (for I have not got the article) it was little more than a lucky guess that led him to do so.

Mr. Bardney recommends lime to be used for Vine borders if the soil does not contain it in quantity, and illustrates the subject by referring to a Cabbage bed. I commend to his notice the following passages, copied from "Warrington's Chemistry of the Farm." "Burnt lime is much more powerful in its action on vegetable matter than chalk or marl; it should be used with discrimination lest the humus of the soil be unduly diminished." And again, "The general effect of lime is to render available the plant food already in the soil, without itself supplying any significant amount; liming cannot therefore be successfully repeated, except at considerable intervals." In the last few lines Mr. Bardney tells us if the Grapes are not colouring well to give lime. Now, Vines need not be allowed to suffer before the lime is applied. To determine whether lime is present put a little of the soil in a glass and pour some vinegar on; if it effervesces lime is present, and the amount of effervescence will give an idea of the quantity of lime. If a gardener possessed sufficient skill to make a partial analysis and so determine the composition of a given soil it would reduce blunders to a minimum. I have grown Roses, Dahlias, and Chrysanthemums up to exhibition form without any scientific knowledge—that is, before I commenced to study chemistry, but undoubtedly it is well to have an elementary knowledge of the same, and I should think better still to know something of analysis. I ask other correspondents to give their opinions on this subject with suggestions to intending students and any information they may themselves possess.

I do not agree with "Thinker" concerning the Gros Colman question. Such a gardener as Mr. Taylor describes would not so neglect pot Vines. And, again, if want of water had made the leafstalks droop, the leaves too would have followed suit, and Mr. Taylor distinctly says the leaves remained rigid.—A. L. G.

CARTER'S ASHTON FLUKE EARLY KIDNEY POTATO.—Last year, in reply to a private inquiry from a gardening friend in Cheshire as to the best second early kidney for a gentleman's table, I recommended this variety. To-day I had a note saying the variety was not so much of a success as I anticipated it would be, adding, "The soil was somewhat cold and retentive, and of marly clay formation." This information was

not previously given. Had it been I should probably have recommended Porter's Excelsior or Schoolmaster. This variety, being one of the hand-somest kidneys and of the finest quality grown, will not suit "a cold retentive clay" in my opinion. Perhaps you would permit me to ask the opinion of others who have grown this variety through your columns.—W. J. MURPHY, *Clonmel*.

#### CYPRIPEDIUM CENANTHUM SUPERBUM.

THREE useful old *Cypripediums* have been concerned, directly or indirectly, in the production of this handsome hybrid, and it might therefore be expected to exhibit, as it does, a combination of excellent characters. One of the earliest hybrids raised in this genus was *C. Harrisianum*, which Mr. Dominy obtained from *C. barbatum* and *C. villosum*, the only other hybrid *Cypripedium* secured by the same raiser being *C. vexillarium* from *C. barbatum* and *C. Fairrieianum*. Employing *C. Harrisianum* as one parent, Mr. Seden crossed it with *C. insigne*

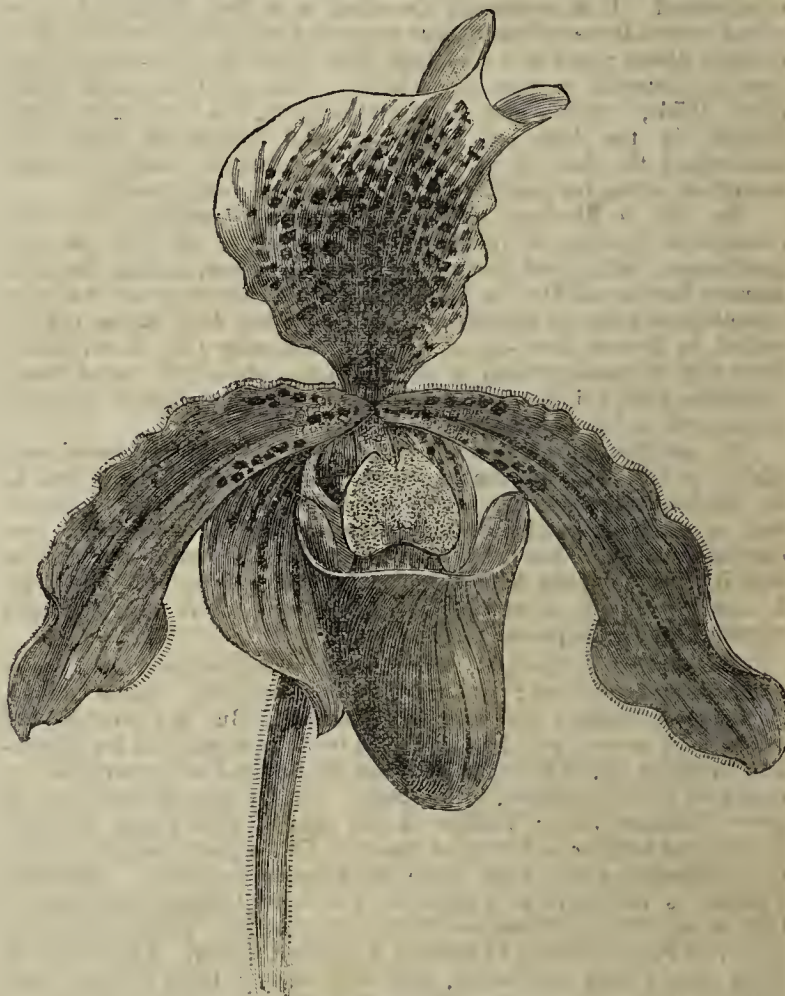


Fig. 11.—*Cypripedium ceanthum superbum*.

Maulei, and from the seed thus obtained *C. ceanthum* was raised. There is always much difference in the seedlings from any cross, and so in this case, one proved much superior to the others, and received the title *C. ceanthum superbum*, as in another example we have *C. Leeannum*, and *C. Leeannum* from similar crosses between *C. insigne* and *C. Spicerianum*. *C. ceanthum superbum*, of which a flower is shown in fig. 11, partakes somewhat of the characters of *C. insigne* Maulei, having a margin of white to the dorsal sepal, which is of a purplish red colour in the centre, and lines of nearly black spots. The petals are of similar colour, also with dark spots, and the lower sepals are greenish. It was sent out last year by Messrs. Veitch & Sons, Chelsea.

#### THE CULTURE OF PEAS.

IN my remarks recently I offered to furnish a few more notes, which I will now do, but it should be observed that in describing the sowing of Peas I intended to say that they are better sown closely together in the rows, particularly the early varieties which were then referred to. Just before the growths show themselves through the soil, stretch a piece of strong cotton or thread from end to end of each row to keep the birds from destroying the young plants. I recommend cotton or thread because it is much cheaper than covering the rows with a net, and it is quite as useful for frightening the birds. I have another reason for



preferring the thread, and it is this: when the plants have grown to the height of 5 or 6 inches towards spring we often have a fall of snow, and I have found that the nets hold the snow for a certain time until the weight presses them to the ground, and I find after that the Peas never do so well as those that have thread strung from end to end. Watch the plants, and if you notice the slugs have been destroying any of the plants give a good dressing of unslacked lime just at dusk. Lime is preferred to soot, because it is better for the Peas, a quicker destroyer of slugs, and rather cleaner to use.

When the Peas are ready for earthing up and the plants are very numerous I draw a number out of the rows, and find the others grow much more sturdily; but I always leave more plants in the rows this first time of drawing than is wanted to stand for a crop, because the slugs, I find, very often eat the plants just above the earth, also strong wind perhaps breaks some of the plants, therefore I find it is better to leave a little over a crop than under.

I recommend those who have the trenches ready to make a sowing as soon as possible of Carter's Telephone, Stratagem, and Pride of the Market, Laxton's Evolution, or Everlasting, as I call it, for it bears fine pods of peas a longer time than any Pea I have ever grown, also Laxton's Charmer, Webb's Wordsley Wonder, House's Perfect Marrow, and Culverwell's Telegraph. There are many other good Peas, but I know none better for profit or exhibition than the above named.—HY. MARRIOTT.

### THOUGHTS ON CURRENT TOPICS.

WHEN reading the elaborate commentaries of "Utilitarian" and "J. T. S." last week on a few dreary paragraphs (page 3) on the relative positions of private and professional market gardeners and cognate matters, one thing was impressed rather forcibly on my mind—namely, that my readers and critics will never all agree, either to present me with a testimonial, such as a polished pen, or invest me with the distinction of being the "ugly duck" of the Journal family. I therefore derive consolation from a diversity of taste.

IN accepting the invitation of the first-named correspondent to "crack a few nuts" he has provided, I must remark at the outset that my interlocutor is placed at a natural disadvantage, inasmuch as he is confessedly an interested party, even to such an extent that he sits in judgment on his own case. What wonder, then, he should give the verdict in his own favour? But what weight can a verdict have under those circumstances? That is, I think, a fair point, not to be overlooked in the consideration of the matter at issue. "Utilitarian" sells, by order, the produce from his master's garden; it pays him to do so, benefits others, therefore is right. Possibly it may be. We shall see.

ONE fact appears to be established that I was a little anxious to elicit. Some rather hard things have been said of the owners of gardens making a profit out of their luxuries to the prejudice of struggling toilers in their vicinity. I am not one who believes in the grasping proclivities of the nobility and gentry of this country. On the contrary, I am of opinion there is no more just and generous class of individuals, if I may so call them, on the face of the earth; and I fear that in not a few instances advantage is being taken of their good-heartedness in the systematic clamour for the repeated abatements of rents; but in this matter of selling garden produce in competition with market gardeners it has come out at last that gardeners, not masters, are at the root of at least some of it, because of the "commission." Thank you, "Utilitarian," for that significant and unasked-for admission. You are a good and faithful servant, I doubt not, looking well and honestly after your master's interests, and your own.

Now to business. Your correspondent has never heard a "single" market gardener complain of his competition, nor a married one either, perhaps; but let that pass. If the seat of his operations overlooks the highly cultivated market garden farms in the Thames Valley, the owners of them are not much more likely to complain than the directors of the Great Western Railway would if a new one-horse carrier commenced business by the side of their line. It is the smaller cultivators who are striving, almost in vain, all over the country, to make a livelihood from their land and vineries, who feel themselves handicapped because of the enormously greater percentage they believe themselves rated on their property in comparison with their great rivals, who profit by private market gardening. I am neutral in this matter, and have raised the question with the object of seeing what there is in it. There may not be the great inequality of rating that many suppose, and in that event there is no real grievance. What I think is this. If a gentleman systematically buys plants to grow with the object of selling them again at a profit, he should be rated exactly on the same scale as if he were a nurseryman; and if another grows fruit, flowers, and vegetables with the same object in view—profit, he should be assessed at the same rate, in accordance with the value of his land and structures, as regular market gardeners are in his district, and no more. Has "Utilitarian" anything to say against that? If it is unfair I ask him to point out wherein it is so.

EQUITABILITY in the matter of rating would not, in my view, limit

the production of garden produce in the slightest degree. As much as ever would be produced, and it would reach consumers just as cheaply as it reaches them now. The difference would be this—Those cultivators who are rated too high now would have their profits slightly increased, because of the rating reduction; while those rated too low would have somewhat lessened profits in accordance with the increase of the rates. They would be placed on an equality as traders, and I cannot conceive any fair-minded person complaining of that. The difference would probably be slight in either case in the majority of instances; but slight or not, I cannot think it right for one trader to enjoy privileges at the expense of another. If "Utilitarian" thinks differently let him state "the reason why."

IN my opinion the practice of sending large quantities of produce from private gardens to London does not benefit consumers to anything like the extent that is popularly supposed. I have helped to clear more than one house of Grapes, and gather and pack other produce for Covent Garden. This was as often as not done as a matter of home convenience. The result was often disappointingly small "returns;" but those who think the produce was sold to the public at correspondingly low prices are greatly mistaken. The middleman, greengrocer, call him what you will, is the gainer in these transactions, not the public. Private garden stuff is a gold mine to these enterprising individuals. They buy pretty much at their own price and sell too, and in the former case it is as low as possible and the latter as high. This is what is called "doing business." I am intimately acquainted with a gentleman who gave 5s. 6d. a pound for Grapes at a London fruiterer's that were grown in the gentleman's own garden and sold therefrom for 2s. 6d. a pound, and on his return home the gardener had not a very pleasant quarter of an hour. If means could be devised of getting the produce from gentlemen's gardeners more directly to consumers its sale would be a blessing to millions, whereas it is now mainly a great blessing to middlemen and a small one to gardeners in the shape of the "commission," which as a rule they well earn by good management and hard work. As the London butchers get the profits from farmers' flocks and herds, so do middlemen chiefly benefit by the culture of garden produce. Things have come to the pass that is burlesqued in the case of the hungry lawyer and his litigants—"A shell for thee; a shell for thee; the oyster is the lawyer's fee." Who can point out a remedy? If an "Utilitarian" can, the greatest blessing of all will be his having entered into the arena of garden literature. I have read a few of his previous articles with interest, but his last bore the stamp of great ability, and if he is a novice, which I am inclined to doubt, he is promising.

YOUR correspondent puts two questions to me—one personal, the other typical. These I will endeavour to answer, then propound one which I hope he will answer in turn. The personal question is founded on the hypothesis that I may some day retire from work and live the life of luxury in a villa. I anticipate no such luck, but, on the contrary, am inclined to think that "Utilitarian," with his wages as a gardener and his commission as a trader, will first qualify himself for that distinction. Yet, suppose I should ever be able to retire into villadom, and attach a conservatory to my residence, I am invited to say what I should think if my assessment was increased on that account. I should think it quite right if it was not in excess, proportionately, of that of the Lord of the Manor. Conservatories are luxuries, and it is a fundamental principle of government administration that luxuries shall be taxed the first and the heaviest: necessities the last and the lightest. If I make a profit out of my conservatory the luxury is the greater to me, and the more enjoyed; therefore the assessment should be slightly increased; and if I add more structures, and especially if I profit by them, each should be rated in turn, because I am not dependant on them for a livelihood. That is my answer.

THE next question is typical. A garden of luxury, once well kept, is now practically abandoned through reduction and non-payment of rents, &c. I am asked to say why this neglected garden should not have its assessment reduced? If the estate of which the garden forms part is rated proportionately higher than the land and houses of farmers and market gardeners in the same parish, the assessment should be reduced; but if there is no such inequality, then, in my opinion, there should be no reduction, because this would amount to a contribution from impoverished farmers and others to maintain the "stables, showy men servants, and general keeping-up appearances," cited by "Utilitarian" as causes of neglected gardens. It would be granting a bonus for the very extravagance your correspondent condemns. If the garden were not amenable to improvement it would be another matter; but we are given an example of a garden being improved marvellously, yielding now a profit of £150, whereas two years ago it did not grow sufficient for the household. "Cultivation alone" gave the increased yield. That is the sound remedy. This garden is a greater luxury than ever, and if the assessment of the property is not already equal to that of surrounding market gardens, "Utilitarian" ought, as a just man, to be glad to see an early rectification.

Now Mr. "Utilitarian," kindly attend to this. Supposing you have to leave your pleasant post, and have by frugality and thrift saved a few pounds, not sufficient for the "villa," but just enough to enable you to earn an honest living by hard work as a market gardener. Your little homestead is already assessed at as high a rate in accordance with the value of the property as the mansion and demesne you have left. You manage to erect a house, sell a crop of Cucumbers or Tomatoes from it;



then, with the proceeds and a little borrowed money, erect another, so continuing your striving for a maintenance. How should you like Mr. Assessor to increase your rating with the increase of your stock, until your contribution became a hundred per cent. greater than that of your neighbour who is not dependant on the products of his garden for affording him the means to live? I cannot think you would like that, nor do I believe the owner of the mansion would like it if your positions were reversed; but, however, that may be, please answer the question as plainly as I have answered yours.

I SAY not one word against gentlemen selling garden produce. It is good for them to do so, for their gardeners, labourers, trade, consumers, and especially for "middlemen;" nor would I have them rated more highly than market gardeners are, any more than I would have these latter overweighted by local burdens. Given an equality in this respect, where would be the injustice? A grievance that is alleged to exist would be removed, as much "garden stuff" would be grown as ever, if not more, and the great mass of consumers in town would not have to pay one farthing extra in obtaining their usual supplies than they pay under existing circumstances.

IT is not necessary to refer to other points in the very interesting communication that I have been invited to examine, as I am mainly in accord with them, and I shall not be very much surprised if "Utilitarian" is not a little more in accord with my views in some other respects than appears on the surface, for I cannot help feeling that the full significance of his article is only to be grasped by reading between the lines; in fact, to speak exactly what I think, I must regard it as a skilful example of "drawing," as I see he tempts me on a larger question, but that bait is declined. I have been encouraged to proceed thus far because of the treat I am anticipating in the form of a (possibly crushing) reply.

I AM not able to give full assent to the opinions of "J. T. S.," which seem to imply that our dear old country will be bowled out of existence by foreign competition. I am fully convinced that nothing of the kind is in store for us. The advantages are on our side still if they can be turned to the best account. The "virgin lands" of the far north-west appear to cause some needless alarm. Land in America cannot be had quite for nothing. The rents of many farms that are rented in the west are as high as the reduced rentals of many a fertile—or might be fertile—farm in Britain. Hundreds of farms that are "owned" in America are worked with borrowed money, for which 7 or 8 per cent. interest is paid, labour is more costly there than here, while implements and manures are no cheaper. And what about "returns?" Flocks and herds do not command higher prices there than at home, while the average yield of Wheat in America is about 17 bushels per acre and in England nearer 27 bushels. With a margin like that in hand, and our competitors 5000 miles from market, I say it would be scandalous and humiliating for England to succumb.

LESS luxury, as in America, and better tillage at home; fewer hunting farmers and more enterprising energetic cultivators, with as much land as they can manage and no more; security for capital, freedom of cropping to the fullest extent possible, under necessary safeguards—given such conditions as these—and they are certain to come by degrees—the land of Great Britain will yield vastly more food than it produces now, and, though prices may be low, good livings can be had by those who will labour, and good rents will remain for the owners of land.

It is not the high prices that market gardeners get per dozen, or per bushel, or per cwt. for their wares, but the high culture they adopt, and the consequent great bulk of produce they obtain, that enable them to pay so much more rent than farmers pay. If they managed their land no better than thousands of acres are "farmed" at this moment, market garden rents would fall and tenants fail, for it seems that when rents, already moderate, commence falling, cultivators cease striving, as if in anticipation of the next abatement. It is time the truth was spoken on this subject, which is of vital interest to gardeners and everybody connected with or dependant on the land; and who is not? I feel I must apologise for occupying so much space. I quite intended resting for a week or two, but could not with propriety pay no regard to the admirable contributions to which I have referred.—A THINKER.

#### THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE annual general meeting of the subscribers to this Institution took place Friday, January 15th, at "Simpson's," 101, Strand, when the report of the Committee and the accounts for the year were submitted. Happily the funds at command permitted the addition of twenty-five persons to the list of pensioners, the names being as follows:—John Andrews, of Astley Abbotts, Bridgenorth, aged 60; William Elsworthy, of Wandsworth, aged 70; Frances Elizabeth King, of Salishury, aged 62; Mary Ann Parker, of Southport, aged 70; Jacob Rose, of Stoke, Guildford, aged 62; James Snow, of Wandsworth, aged 66; Edward Spary, of Brighton, aged 82; William Archer, of Stratford, Essex, aged 81; Maria Austin, of Stourport, aged 68; Joseph Bellis, of Whitechurch, Salop, aged 68; Thomas Best, of Clapton, aged 70; William Cowles, of East Sheen, aged 68; Richard Daphne, of Ealing, aged 76; George Dawson, of Worcester, aged 73; John Dev, of Teignmouth, aged 67; Sarah Drummond, of East Sheen, aged 65; William Harman, of Denham, Uxbridge, aged 60; Elizabeth Howe, of Lowestoft, aged 67; Peter Lowe,

of Cheltenham, aged 67; Edward J. H. MacGuinness, of Gravesend, aged 73; Susan Mills, of Walthamstow, aged 78; Robert Pryor, of Brixton, aged 75; Joan Boyd Rintoul, of Manchester, aged 67; Eliza Skinner, of Cudham, Kent, aged 73; Sophia Ware, of Midhurst, aged 69. Thus increasing the number of pensioners from 104 in January, 1885, to 118 in January, 1886—viz., fifty-two men at £20 per annum, and sixty-six women at £16 per annum.

The following is the financial report for the year, which shows substantial and encouraging progress:—

RECEIPTS AND PAYMENTS FOR THE YEAR ENDING DECEMBER 31ST, 1885.									
DR.		£ s. d.		£ s. d.		£ s. d.		£ s. d.	
To balance from 1884 .. .. .								386	8 10
" Annual subscriptions .. .. .		1204	13 0						
" Donations at and in consequence of annual dinner .. .. .		771	3 6			1975	16 6		
" Advertisements .. .. .		56	0 6						
" Amount of collecting cards .. .. .		143	7 0			199	7 6		
" Dividends on stock .. .. .		549	15 0						
" Interest on deposits .. .. .		2	10 3			552	5 3		
						£2727	9 3		
" Legacy from Mrs. Dodson .. .. .		450	0 0						
" " J. S. Law, Esq. .. .. .		100	0 0			550	0 0		
" Augmentation fund account .. .. .						4937	4 6		
								8264	13 9
								£8651	2 7
Stock, £21,100, £3 per cent. Consols.									
CR.		£ s. d.		£ s. d.		£ s. d.		£ s. d.	
By Pensions .. .. .						1655	1 4		
" Secretary's salary .. .. .						160	0 0		
" Printing .. .. .						117	4 3		
" Furniture for office .. .. .						40	19 6		
" Hire of Committee-room .. .. .						5	17 0		
" Stationery .. .. .						17	16 4		
" Books of cheques .. .. .						3	9 2		
" Advertising .. .. .						6	1 6		
" Expense of annual dinner .. .. .						78	5 3		
" Postages, travelling expenses, and sundry petty expenses .. .. .						84	6 9		
" Solicitor's bill .. .. .						2	2 0		
						£2171	3 1		
" Purchase of £5150, £3 per cent. Consols .. .. .						4992	13 9		
" Amount placed on deposit .. .. .						1100	0 0		
								6092	13 9
" Balances—viz., With Treasurer at Banker's .. .. .						371	19 9		
" " " With the Secretary .. .. .						15	6 0		
								387	5 9
								£8651	2 7

Audited 11th January, 1886,

JOHN LEE,  
JOSEPH F. MESTON,  
JESSE WILLARD.

Referring to the above report the Secretary, Mr. E. R. Cutler, remarks:—"It is a curious fact, but it is a fact, that nearly all the other charities in London are curtailing their charity, and to make both ends meet are obliged to sell out their reserve. We are not only increasing our number of pensioners, besides increasing by 25 per cent. the amount of the pensions £4 per annum each, but we have increased our reserve to £21,000." The Institution now has permanent offices at 50, Parliament Street, S.W., to which all communications should be addressed.

#### THE PHYLLOXERA AND FOREIGN WINE AND BRANDY SUPPLIES.

WE hear of thousands of acres being devastated by phylloxera on the Continent, but we do not hear of any diminution in our wine or brandy supplies. Some very conscientious men have owned that supplies are short of certain kinds, but the general trader or wine merchant will readily undertake to supply any amount of wine or brandy supposed to be the productions of localities that are almost producing nothing in comparison to what they get the credit of. In this age of shams wines and brandies are freely tampered with, and the public are often made to swallow liquids that have not the slightest claims to the names and characters bestowed upon them.

From a report lately furnished to the Academy of Science by the head of the Paris Municipal Laboratory, it appears that genuine brandy is becoming exceedingly rare, even in France. "Chambers' Journal," commenting on this fact, states that "for the ten years preceding the year 1850 the quantity of alcohol distilled annually in that country averaged twenty-five million gallons, and the major part of this was obtained in the form of brandy from wine. Now, although the total amount of spirit distilled is more than doubled, the juice of the Grapes does not contribute half a million gallons to the sum. The rest comes from grain, cider, perry, Beetroot, molasses, and Potatoes. This inferior kind of spirit is not properly rectified, and is charged with poisonous agents of the most deadly character. The compiler of this report, M. Girard, attributes the increase of insanity in certain localities wholly to these imitations of French brandy. Our readers may perhaps be ignorant of the fact that thousands of gallons of raw grain spirit are sent to France from this country to be doctored and returned as genuine French brandy."

Phylloxera seems to have broken out at the Cape, no doubt through the introduction of some wines from the Continent, and unless the authorities there are prompt in their efforts to cope with the dread pest we may expect to hear of much damage being done.—T. S. J.

In reference to this subject the following is an extract from the statistics published by the French Ministry of Agriculture:—

"The figures with regard to the vintage of last year are melancholy



reading for the producers—and, it may be added, for the consumers—of wine, as they show that the yield was the smallest, with one exception, known for the last thirty years, and 50 per cent. below the average of the last ten years, which have themselves been distinctly 'lean years.' The total amount of wine made was only 642,000,000 gallons, this being just a third of the exceptionally large crop of 1875. The decline is of course due in the main to the ravages of the phylloxera, as this insect has been so busy during the last ten or eleven years that the area of vineyards under cultivation has fallen from upwards of six to rather under five million acres, this alone telling plainly of the mischief that has been done. The cultivators of the Vine were further tried last year by the weather, which was very unfavourable for the Grapes, both in the summer and autumn, fierce drought preceding the rain instead of following it, and this was notably the case in the Bordeaux and Champagne districts, while the vineyards in the central departments of France, including the Burgundy district, were well favoured in the matter of weather. The mildew did a good deal of damage in the southern departments, but it is hoped that an effectual cure for this disease has been found in a solution of chalk and sulphate of copper, experiments upon a large scale in the Bordeaux district having been very successful. The departments in which the quantity of wine made was largest were the Herault (48,330,340 gallons), the Aude (47,160,945 gallons), the Puy-de-Dôme (36,689,940 gallons), the Vienne (27,624,150 gallons), the Loir-et-Cher (27,414,045 gallons), the Côte d'Or (24,796,845 gallons), the Gironde (24,211,260 gallons), the Indre et Loire (22,572,990 gallons), and the Yonne (22,147,065 gallons). The only French departments in which no wine is made are the Calvados, the Côtes du Nord, the Finistère, the Manche, the Nord, the Orne, the Pas de Calais, the Seine-Inferieure, and the Somme, though in some of the others the yield is very small, notably in those which, like the above-named, are nearest to the British Channel. Small as was the crop of wine last year, the quality is reported to be remarkably good, and the prices are said to be going up; but the situation is none the less a very unsatisfactory one, for the imports of wine into France last year were over 180,000 gallons, or equal to more than a third of the whole quantity made in France. Worse still, the exports of wine were only 55,575,000 gallons, while ten years ago the exports were 81,767,500 gallons, and the imports only 6,000,000; that is to say, the imports have increased in the proportion of thirty to one while the exports have decreased at the rate of three to two."



THE annual general meeting of the ROYAL HORTICULTURAL SOCIETY will be held in the conservatory at South Kensington on Tuesday, February 9th, the chair to be taken at 3 P.M. The first annual dinner will be held the same evening at 6.30 P.M. at the Criterion, and not at the Albion as was previously noted.

— MR. SHIRLEY HIBBERD has withdrawn his name from the list of officers of the INTERNATIONAL POTATO EXHIBITION, and will not in future be associated with the proceedings.

— A CORRESPONDENT, "G.," asks if any of our correspondents can inform him as to "the best seed drill suitable for market gardening."

— MR. J. GADD, Belhus, Aveley, writes—"As opinions are solicited respecting READING HERO POTATO, I may confidently say as far as my knowledge goes that it is good in quality, a good bearer, of strong constitution, and will become in this neighbourhood the Potato for the general crop both with market growers and cottagers."

— WE are informed that at the DEVON AND EXETER HORTICULTURAL SOCIETY'S 1886 Summer Show, Friday, 20th August, and Autumn Show, Friday, 12th November, the Trustees of the Veitch Memorial Prize Fund have allotted a Veitch Memorial medal and a prize of £5 for competition at Exeter in 1886, the competition to be confined to the County of Devon. The Committee of the Devon and Exeter Horticultural Society have resolved that the medal and prize shall be given for a collection of vegetables, to be competed for at their Summer Show (20th August). Schedules and further particulars can be obtained of the Hon. Secretary, C. T. K. Roberts, Esq., 15, Gandy Street, Exeter.

— A NEW American periodical entitled the "HORTICULTURAL ART JOURNAL" (Mensing & Stecher, Rochester, New York) was announced some time ago, and the first part has just reached us. It is to be published monthly, giving eight pages of matter and four coloured plates

of flowers and fruits. Those in the first part represent the following—Marshal P. Wilder Rose, a seedling from Général Jacqueminot, which first flowered in 1881; Plum, Shipper's Pride, a dark purple free-fruited variety; Rancocas Raspberry and the Niagara Grape, a white variety which is said to be very hardy, enduring "a temperature 35° below zero." These plates are well executed, and the general appearance of the publication is satisfactory, but we regret that as regards literary honesty the publishers have commenced badly. A slightly reduced reproduction of our block representing Whinham's Industry Gooseberry, which was engraved for this Journal, and appeared on page 253, September 17th, 1885, is given in the last page of the periodical under notice without a word of acknowledgment.

— "W. O., Fota Island, Cork," writes—"It may not be generally known that *PHYSIANTHUS ALBENS* is quite hardy in the south of England. Plants raised from seed have grown 20 feet high in four years, bearing its small white flowers and numerous large seed pod. The plant will grow in any moderately light rich soil, and is easily raised from seed. A plant here on a south-east wall has been in flower for several months. The flowering at this season I attribute to the dry hot summer of 1885."

— THE sixth annual general meeting of THE ESSEX FIELD CLUB will take place at the Public Hall, Loughton, Essex, on Saturday evening, January 30th, 1886, at half-past six o'clock. The report of the Council for the year 1885, and the Treasurer's statement of accounts, will be read and submitted to the meeting. The election of new members of the Council and Officers for 1886 will also take place. An ordinary meeting will also be held solely for the proposal and election of new members. The annual presidential address will be delivered by T. Vincent Holmes, F.G.S., M.A.I., the subject being "Notes on the Evidence Bearing upon British Ethnology."

— HINTS TO POTATO GROWERS.—One of the largest Potato salesmen in the country writes as follows to the *North British Agriculturist* regarding the culture of the favourite esculent:—"Potatoes are very plentiful, and, in spite of what was written about short crops and heaps of statistics and tabulated business, there are as many Potatoes in Great Britain as there were last season. The only fault is, however, more prevalent than ever, black when cooked. Four-fifths of the Potatoes in the market are *Magnum Bonums*, and nine samples out of every ten cook more or less black. This may seem exaggerated, but it is a fact; some are so black as to be nearly useless. I think, taking them all round, the Scotch Champion cook best this season, and some of the blackest are off the best warp lands of Yorkshire and Lincolnshire, where we should have the very finest quality. All *Magnum Bonums* in south, home, and midlands are full of second growth. I expect a great lot of Regents will be planted next season. They have done well, in Scotland especially; no blight at all, good shape and quality, and good crops, but they are all consumed in local and north of England markets, where they will not have *Magnum Bonums* while they can get round Potatoes, and they are not bad judges, but in London and south they will have *Magnums*. It's strange, but true. There are a good many *Magnums* going from Scotland just now to New York, where they are at present worth £6 to £6 10s. per ton, but the heavy duty and charges there reduce the nett result very materially. The duty is over £1 per ton. So, although the American growers have small crops, they are making fair prices on account of the prohibitive duty. It is very different here. There are lots of German Potatoes here; the freight of about 6s. right up to the river side wharves from Hamburg has induced the Germans to send, but there is no trade for them. The freight from Holland is about 7s., from France 6s., from other places as low or lower, so our farmers in the north have a good chance against this, paying 13s. to 16s. from Yorkshire, 20s. from Cheshire, and 25s. to 30s. from Scotland. Many from Yorkshire are coming this season by sailing vessels, and, of course, from Scotland, but this can only be done where Potatoes are near a river or sea coast."

— AT the ordinary weekly meeting of the PAXTON SOCIETY, held at Wakefield recently, Mr. Henry Oxley, one of the Vice-Presidents, occupied the chair, and Councillor Milnes was in the vice chair. Mr. J. Smith, gardener to Mr. T. Green, of Leeds, read an excellent paper entitled, "Historical Introduction to Rudimental Botany." The essayist was listened to with the greatest attention, and at the close of his paper he was, on the motion of Mr. T. Garnett, seconded by Mr. L. Twigge, accorded a very hearty vote of thanks. The lecturer exhibited a large number of



beautifully mounted and named botanical specimens which he collected and mounted seventeen years ago, and they were much admired. At a subsequent meeting, Mr. T. Garnett, gardener to Miss Mackie, St. John's, gave "An Essay on the Potatoe Disease." The lecture was an admirable one throughout, giving the whole history of this destructible disease. The Fungi was shown in its various stages by the aid of three powerful microscopes, and Mr. Garnett had prepared a number of diagrams also showing the development of the "Peronospora" very much enlarged. After a lengthy discussion having special reference to the way of destroying the spores and otherwise checking the ravages, the usual vote of thanks was heartily passed to Mr. Garnett.

— WE welcome a new contemporary which has just appeared under the captivating title of *Fishing*. As its name implies, its pages are devoted to papers on angling and information on all angling matters. The papers are admirably written and are most entertaining, not to anglers only but to others who relish literary leisure. The first number is illustrated by an excellent chromolithograph of a Thames barbel, and also with various other illustrations interspersed in the letterpress. It is issued from the office of *Land and Water*, and we wish it success.

— THE following prizes "open to all England" will be competed for at the ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY'S SHOWS for the current year:—June 29th, nine stove or greenhouse plants (in flower), £10, £8, £5; six Cape Heaths, £4, £3, £2; twelve Pelargoniums (not Fancies), £4, £3; twelve ditto (Fancies), £4, £3; twenty-four Roses, distinct (single trusses), £2, £1 10s., £1; twenty-four ditto (in triplets), £3, £2, £1: Webb & Sons' Special Prizes—Six dishes of vegetables, distinct £3 3s., £2 2s., £1 1s., and 10s. 6d. July 29th, Sutton and Sons' Special Prizes—Six dishes of vegetables, distinct, £3 3s., £2 2s., £1 1s., and 10s. 6d.

— A CORRESPONDENT writes:—"At one of the meetings of the National Society of Horticulture of France last year M. George Chemin, market gardener of Issy, was awarded a prize for his exhibit of TOMATOES of a large red variety, of which eighteen weighed a trifle over 17 lbs. The variety is commonly cultivated by Parisian gardeners, but it is by exceptional carefulness of cultivation that these were brought to such rare beauty, and not only on exceptional plants but uniformly. One part of the treatment deserves mention; it consisted in wetting them thoroughly every morning to prevent their cracking with the first rain, and the result was seen to be most satisfactory."

— WE learn with regret that FRANCIS ERSKINE LAING, aged twenty-two, the youngest son of Mr. John Laing, died at Stanstead Park, Forest Hill, after a painful and protracted illness.

— AT the annual meeting of the PUTNEY AND DISTRICT CHRYSANTHEMUM SOCIETY, held on the evening of the 21st inst., the Honorary Secretary, Mr. J. Moore, was surprised by the presentation by Mr. Pitt of a handsome walnut stationery cabinet completely furnished; also with an address from the members, thanking him for his services to the Society. All who know Mr. Moore will acknowledge his unfailing courtesy, also his disposition to do well whatever he undertakes, and this recognition of his services is well merited. The next show of the Society is fixed for November 16th and 17th.

— A CORRESPONDENT, "A. B. C.," desires information on GARDENING IN AUSTRALIA. He wishes to know, "What prospects are there for gardeners emigrating and finding situations similar to those in England? also for market gardeners and nurserymen?" We will readily publish information on this subject that any of our readers may be able to supply.

— THE NATIONAL CHRYSANTHEMUM SOCIETY held their annual general meeting on Monday, the 25th inst., at the Old Four Swans, Bishopsgate Street. The principal business was the election of officers and General Committee for the ensuing year. The officers of the past year were re-elected—namely, President, Mr. E. Sanderson; Vice-President, Mr. R. Ballantine; Treasurer, Mr. J. Starling, and Hon. Sec., Mr. W. Holmes. Several members were added to the General Committee comprising Messrs. G. S. Addison, N. Davis, H. Cannell, G. Gordon, L. Castle, G. Stevens, E. C. Jukes, J. W. Springbett, and C. Harman Payne. The balance sheet showed that the finances are in a satisfactory condition, and it is proposed to hold a September Show for the early-flowering varieties of Chrysanthemums. Mr. W. H. Cullingford has liberally contributed ten guineas towards another late exhibition in

January. The election of members to form the Floral Committee was referred to the first meeting of the General Committee.

— THE annual meeting of the HUDDERSFIELD CHRYSANTHEMUM SOCIETY was held on Saturday evening last, at the Queen Hotel, under the presidency of Mr. G. Jarman. It was stated that they commenced last year with a balance in hand from the previous show of £63 10s. 10d. They thought they were entitled to offer some good prizes, so as to induce some of the best growers in the country to compete, and accordingly prizes to the value of £105 were offered. The season, however, turned out very unfavourable for the Chrysanthemum in that part of the country. A hot summer was succeeded by a cold August, and the blooms were not in such a good state as could be desired. Nevertheless, the exhibits were excellent, and the Judges, who were experienced men, said they were as fine as they had seen anywhere, north or south. Although the balance is not so large this year as last, it was readily accounted for by the fact that the previous year being the first year a special effort was made, and some people subscribed larger than they meant to continue. The total income, including a balance of £63 10s. 10d., came to £244 17s. 6d., and the total expenditure to £167 12s. 8d., leaving a balance in hand of £77 4s. 10d. It was decided to hold the third annual show on Friday and Saturday, November 12th and 13th next. The Mayor (Alderman J. Varley) is to be requested to act as President of the Society during the year, the Vice-Presidents being increased by the addition of the names of Mr. S. Learoyd, Mr. J. Hey, and Mr. G. E. Elliott. Mr. George Jarman was re-elected Chairman of the Committee of Management, Mr. G. W. Rhôdes being appointed Vice-Chairman, and the following Committee was elected:—Messrs. W. Daniels, H. Hillman, M. Chambers, F. Stokes, F. Carter, W. Tindale, G. Barr, C. Smedley, J. Nettleton, J. W. Thornton, F. Hutch, J. Burns, T. Baxendale, J. Smith, George Hey, J. Sykes, W. Matthewman, E. Newsome, W. Swindlehurst, T. Stephenson, W. Heywood, J. Beaumont, J. Bulb, B. Micklethwaite, G. Pownoy, and W. Ferguson. Mr. W. B. Hill was re-elected Treasurer, and Mr. John Bell Hon. Secretary of the Society.

— KINGSTON AND SURBITON CHRYSANTHEMUM SOCIETY.—The Committee met on Tuesday evening to draw up the schedule of prizes for 1886. It was unanimously resolved to offer another twenty-five-guinea challenge cup on the same conditions, and with money prizes as before—viz., first prize, cup and £5; second, £4; third, £3; and fourth, £2, for forty-eight cut blooms distinct, twenty-four incurved, and twenty-four Japanese; and, in addition to other extra-monied and special prizes, there is offered for the first time a silver cup valued £5 for the best group of Chrysanthemums 50 feet, and second, third, and fourth prizes of 70s., 50s., and 30s. respectively. There is also offered a local cup for twenty-four cut blooms, twelve incurved and twelve Japanese, of the value of £5, with a second prize of £3, and a third of £2, open to all subscribers within the Kingston Poor Law district. Mr. F. A. Davis having resigned the Presidency, Mr. Alderman G. C. Sherrard has been unanimously elected President of the Society.

— "SLOUGH" writes:—"Can 'Thinker' or any other correspondent suggest a remedy for the 'CLUB,' with which our Broccoli have been affected every year? The soil is gravelly loam resting on gravel. I have tried without success puddling the roots in clay, planting in undug ground, and in ground into which had been mixed 1 bushel of lime to 1 perch, also both early and late planting. Last year the disease was worse than ever. Would coal ashes be conducive to the spread of the disease?"

#### GROS COLMAN VINE.

I DO not wonder that the "potash theory" advanced by Mr. Taylor on page 576 of the Journal for Dec. 31st in reference to this Vine has arrested the attention of Grape growers. It is a subject of vital importance, and I trust it shall receive from the hands of our scientific horticulturists the attention it deserves. I believe the absence, or at least an insufficient supply of something in the soil, has more to do with the tenderness of the foliage of this variety than most people imagine. What that is I am not prepared to say; that I will leave our scientific friends to discover.

Last October, while visiting the gardens of a gentleman in this neighbourhood, a remarkable circumstance was brought under my notice, which has a forcible bearing on the subject at issue. In a small vinery Lady Downe's, Alicante, and Gros Colman, growing side by side, and receiving exactly the same treatment, displayed the most unusual diversity of foliage. The Lady Downe's had certainly nothing peculiar about it, but much like what we usually see in the month of October. The leaves were just beginning to take on their autumn tints, but the Alicante—there was but one rod—presented a truly remarkable and magnificent appearance, every leaf being of a bright crimson colour, not blotched or



striped, as is sometimes seen, but one mass of colour and perfectly fresh. I have known some varieties produce the most lovely tints while ripening, but never any to approach the grandeur of this blood-red Alicante. I was informed that it had displayed this peculiarity for many years, and that its leaves were much sought after for house and table decoration, which when dried and varnished would be most useful and attractive. By the side of this Alicante was a rod of Gros Colman, every leaf of which was as green and fresh as if it had been midsummer. It was carrying a very fine crop of large bunches with extra large berries, and perfectly black. The vinery was a lean-to and facing the south, built of iron, the sashbars and astragals being of the lightest description, with large panes glazed without putty. So this Vine of Gros Colman was fully exposed to the full blaze of the sun during the past bright summer, and yet in the month of October its foliage was in this high state of preservation. Doubtless the mysterious something which coloured the foliage of the Alicante was the means of preserving the foliage of the Gros Colman. What that something is would be most interesting to know.—D. B.

MR. TAYLOR replies to "A. L. G." briefly, and I am sorry to find he gives me the option of supplying scientific information which Mr. Taylor himself hesitates to put on paper. I have no desire to be considered a competitor on this point with the founder of the famous Vines at Longleat, from which I was kindly favoured with some eyes a few years ago. Appreciating Mr. Taylor's spirit in discussions, I am willing in the capacity of pupil to state my mode of making and using potash, which is carefully prepared wood ashes, containing on analysis a good proportion of potash. When we dress Vine borders during winter part of the surface is removed in the usual way, and in some case pointed with a piece of sharp iron, but our early Vines especially have now become such a mass of fibre on the surface that any interference seems cruel. A very heavy layer of wood ashes is spread over the border, next follows a layer of loam and old lime rubbish, and then a covering of newly shaken out droppings, as for Mushroom culture. This being done, a thorough watering is given, and allowed to settle a couple of hours, when another thinner covering of wood ashes is given, the large flat river stones are replaced, paving the border, and a moderate watering is supplied.

Mr. Taylor seems to think it difficult to understand why shade is needed by Gros Colman more than other Vines. My observations leave little doubt regarding this point—at least, in our case; and as Mr. Taylor has succeeded in growing Gros Colman satisfactorily without shade there may be some difference in the structures, or the distance of the Vines from the glass. If, as at Longleat, Mr. Taylor's Vines are some distance from the glass, which is not the case here, ample compensation for shading would be afforded. As "Thinker" remarks, however, there is considerable difference in the foliage of Gros Colman as compared with others. This, coupled with the greater amount of veinless surface, and the fact that the leafstalks detach more readily from the wood in any stage of growth than others, convinced me that some special treatment of the foliage was necessary. Further examination this winter has shown that Gros Colman has not so many surface roots as some other Vines, Trebbiano in the same house having quite treble the amount of fibre. If such should be universal some degree of failure to retain its foliage might result from lack of root-action, and any neglect in watering would as a consequence be sooner felt.

I fear I do not rightly comprehend Mr. Taylor's meaning when he says that a good leaf of Gros Colman is double the thickness of any other variety that is now usually grown in houses. I have never seen it thicker in texture than some others. I may add that during July last summer we removed the large stones from our Vine borders and placed about 5 inches thickness of newly scythe-mown grass in a wet state, again replacing the stones and giving a thorough soaking with diluted liquid manure washed from a large heap, cow and horse manure mixed. On removing the stones white fibrous roots in abundance were found underneath them, and in five weeks they had penetrated and fairly taken possession of the green ensilage-like food, and underneath the stones again becoming matted. I need hardly say a great improvement was visible.—LATHYRUS.

"A THINKER" certainly deserves credit for his latest discovery—"the microscopical thought," and the note from his hotanical friend as to the arrangement of the cells in the leaf of this Vine is interesting and suggestive. There is no doubt, as your correspondent says, that Gros Colman, and also other varieties of Vines, would often do better if they had as much water as they required. But before we make up our minds that this variety does need an appreciably larger quantity than others we must have further evidence.

If Gros Colman evaporates more water from its foliage it will follow that it will dry more quickly at the root; and if this or any other variety suffered from lack of water sufficiently to cause the injury I mentioned at page 576, it would not recover sufficiently in one season to produce Grapes fit for the exhibition table the next year. When I say that the Vines alluded to were grown by myself in 1884, and that they included those which bore the Muscats shown in Bath in September, 1885, so highly enlogised by Mr. Coleman at the luncheon as the best Grapes in the exhibition, and also by your special reporter, as probably the best Muscats that had ever been grown in pots; and further, that two bunches of Gros Colman shown at the same time off one of the Vines that suffered the most was pronounced by your reporter to be the blackest he had ever seen of that variety, it will go some way towards proving that the lack-of-water theory will not apply in this particular case. Whether Gros Colman needs more water than other varieties can scarcely be tested practically when it

is planted amongst others in a border; but when grown in pots it can be readily tested.

In this case I happen to know that Gros Colman took and required less water than the others during part of its growth; but I will explain that that fact cannot be used against your correspondent's argument. As I have before stated, its foliage was the first to become discoloured, and it suffered more than any other variety for the lack of something. Then, as a matter of course, it could not evaporate the water so fast, and when I did not apply the water myself I invariably tested the pots, and those containing Gros Colman were many times marked by placing a stick in the soil as a reminder to my deputy that they were not to be watered. This is, of course, fixed on my memory. I cannot say whether they took more water than others during their healthy condition, but I certainly am under the impression that I should have noticed it if they did.

"Thinker" says "If the absence of potash alone is the predisposing cause of the collapse of the foliage, how is it that shaded leaves continue fresh the longer?" As well ask how can a man who never used his muscles, and is never exposed to unpleasant weather, be preserved to look well till he reaches the age of threescore? To look at, he appears as good as another man; but appearances are misleading, both in men and foliage.—WM. TAYLOR.

### THE PLANTING OF THE FITTEST.

SHOULD anyone when the weather is favourable (for it will even then not be too late to set fruit trees, since the sap must still be dormant) have a spare corner in garden, field, or orchard for another Apple tree or two, let him try Bramley's Seedling. The tree is very hardy in growth and good in habit; fruit certain, beautiful, and profitable. Bramley's Seedling is not as well known as it might be. The Apple is large, round in shape, eye full and deep set, colour in swelling a peculiarly intense green, changing as it ripens to soft yet brightest, fullest red, diffused flush-like more or less all over the fruit, and, unlike other high-coloured Apples, having nothing of that hardness in appearance which resembles painted or waxen imitations.

Bramley's Seedling ripens in October, is good for table, excellent for cooking, hard-fleshed, white inside, and with common care can be kept for months. On fruit-storing, though so late, I should like some time to say a word or two which might be helpful.

The weather has been severe, with heavy snow from the north. In my notes last week "growing Poppies" should have been "glowing Poppies."—A. M. B., *Mid-Lincoln*.

### CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 39.)

NUMBER OF PLANTS REQUIRED TO GIVE BLOOMS IN FORTY-EIGHT, TWENTY-FOUR, AND TWELVE VARIETIES.

YOUNG growers are often much puzzled to know how many plants they should cultivate with the intention of having a given number of exhibition blooms at a certain date. Many persons think it right to grow a very large number of varieties, but in this case the old adage, "Safety in numbers," does not apply; quite the reverse. It is far better to select a fixed number of varieties best suited for the purpose intended, growing a number of plants of each, than to be burdened with a host of kinds that cannot be relied on for the object in view. Several varieties are admittedly useful for other purposes than supplying exhibition blooms of the highest quality; but if the production of these is the main point, varieties that do not afford them should be eschewed. I strongly advise all who have not had experience to bear in mind when forming collections that variety may have charms, but not in all cases value.

If an exhibitor wishes to stage forty-eight distinct blooms, twenty-four of which may be incurved and the remainder Japanese, he should grow at least thirty-six varieties in each section, as all are not to be depended upon to produce what is required. In some seasons one sort is quite useless, whereas the next year quite the reverse may occur. Casualties, too, may happen during the season of growth quite unexpectedly, such as shoots being broken at a critical period by wind, and other unforeseen circumstances; therefore not less than the number stated should be depended upon to insure success. These should consist of the very best, as named in the list previously given. It will be necessary to have 300 plants to effect the object in view, or 150 in each section. In the twenty-four class, supposing them to be half incurved and the remainder Japanese, twenty-four varieties in each section are not too many to grow, and the total number of plants should not be less than 150. When confined to a smaller class of, say, twelve distinct, either Japanese or incurved, the selection should be more rigid than in the larger classes, as there is not so much margin allowed for an inferior specimen or two in smaller, where all are expected to be of the first merit. Twenty-four names should be chosen, and about seventy plants grown, giving the preference to those named in the first part of my list in each section.

To afford blooms for a stand of twelve varieties the selection should be rigorously made (even more so than in the large classes)



selecting those kinds which are known to be the most certain producers of fine flowers. In competing in a class for twelve blooms, either Japanese or incurved, the general good quality should run right through the stand, as in such small classes there is not that opportunity to insert a moderate bloom or two like there is in larger classes. For the benefit of inexperienced growers I append a list of the best twenty-four kinds in each section and the number of each variety it would be advisable to grow for the purpose named :—

**TWENTY-FOUR VARIETIES JAPANESE.**—Four Madame C. Audiguier, four Belle Paule, three Fair Maid of Guernsey, four Jeanne Delaux, three Baron de Prailly, four Criterion, four Val d'Andorre, three Meg Merrilees, three Boule d'Or, three Marguerite Marrouch, three Comte de Germiny, three M. Ardene, three M. Burnet, two Hiver Fleuri, two Thunberg, two M. Astorg, two Elaine, three Duchess of Albany (Jackson), two Japonaise, three Fernand Feral, three Golden Dragon, two Peter the Great, two Sceptre Toulousain, three Mlle. Lacroix.

**TWENTY-FOUR VARIETIES INCURVED.**—Four Lord Alcester, four Empress of India, four Queen of England, four Golden Empress, three Golden Queen of England, four Alfred Salter, three Princess of Wales, four John Salter, two Lord Wolseley, three Prince Alfred, three Jeanne d'Arc, four Hero of Stoke Newington, three Jardin des Plantes, two Mrs. Heale, three Princess of Teck, two Refulgence, two Mr. Bunn, two Empress Eugénie, three Mrs. W. Shipman, two Lady Hardinge, two Lady Carey, two Sir Stafford Carey, three Barbara, two Cherub.

#### MANAGEMENT OF YOUNG PLANTS.

This is a very important phase in the cultivation of the Chrysanthemum, as upon the treatment they receive in the early stages their future welfare depends. Especially they should not be checked in any way, or they will be stunted. When the plants are well rooted and will bear free exposure to the air without flagging remove them from the handlights and place them upon a shelf close to the glass in the same house where they were struck. The advantage of a light position is that it prevents their becoming weakly. They also get more air than they can have when placed on the side stages of the house if ventilation can be given at the top of the house. If the house is not provided with shelves temporary ones can easily be put up by suspending them from the rafters by means of strong wire and screws. The shelves may be about 9 inches wide, according to circumstances, and on each side there should be a groove to run the water off to one end, which can easily be done by allowing a slight slope in fixing the shelves. Any plants standing underneath the Chrysanthemums are then not splashed by the water given to the plants overhead.

At this stage I prefer a cool house to a cold frame for the plants for the same reason as explained in the case of cuttings—that less trouble is caused in preserving them from frost and allowing them exposure to light; but the house must be kept perfectly cool—just enough heat to prevent the plants being frozen. In such a house the air can be maintained in a drier condition than in a cold frame, and mildew, which frequently attacks the young plants, can be more easily dealt with. Great care should be exercised in supplying water, never allowing the soil to become dry.

The future object of the plants must be now determined. Those that are intended to be grown for the production of cut blooms or groups will not require stopping. When the pots are well filled with roots, and before they become root-bound, they will require larger pots. At this time the size in which they are to bloom must be taken into consideration, and for the bulk of the varieties 9-inch pots are large enough, and then the first shift from the cutting pots should be into those 3½ inches wide. The next time employ pots 5½ inches in diameter, and transfer the plants from these to the 9-inch pots. If growers desire to use larger pots, say those 10 inches in diameter, 4½-inch pots should be used at the first shift, next 6½-inch size, and then the 10-inch pots. Where pots of 10½ and 11 inches are in stock I prefer placing two plants in each in preference to potting them singly, using the weaker-growing sorts. By this means a great saving in space is effected, as nearly double the quantity of plants can be grown in the same space. To prepare the plants for these pots at the first shift they should go into the 3½-inch size and then into the 5½-inch size, which allows them to be the right size to occupy the 11-inch at the final potting. As the “east” sizes vary at different potteries I think it better to give the sizes in inches, always measuring inside.

The soil used for this first potting should consist of two parts fibry loam, one part leaf soil, and one part of spent Mushroom bed materials, with a free admixture of sharp silver sand; if the loam is inclined to be heavy add crushed charcoal freely, which keeps the whole porous. For the greater convenience in potting pass the compost through a coarse sieve, rubbing the fibrous pieces through

also; the pots must be quite clean and carefully drained; over the crocks place some of the rougher parts of the soil and pot firmly. If the soil is moist when used no water will be required for a day or two; after this time they must not be allowed to suffer by want of it, neither must they have too much. Return them after potting to their former position on the shelves till the roots run through the soil to the sides of the pots; place a neat stake to each and transfer them to a cold frame or pit, standing them upon ashes near to the glass. Keep the frame rather close for a day or two, avoiding draughts, after which admit abundance of air according to the state of the weather. On very fine days take the lights off for a time, as by this means the plants are kept “stocky.” As soon as the pots are filled with roots they are ready for their second shift as described, the soil consisting of the same materials as at the last potting, with the exception that fine ground bones can be added freely, and a 5-inch potful of soot to 4 bushels of soil, potting the plants more firmly than previously.—E. MOLYNEUX.

(To be continued.)

#### ORANGE CULTURE.

IN 1866 my father read a paper on “Dessert Orange Culture” before the members of the Horticultural and Botanical Congress then assembled. He had successfully cultivated Oranges for some years, and had formed a collection of several kinds. The house which he there describes is still used for the same purpose, some of his fruiting trees being still in existence. When the simplicity of Orange culture is known, it is likely to be more popular than it is. An Orange house is charming in December and January, and, unlike an Orchid house, can be thoroughly enjoyed, the temperature being very agreeable, as it need not be higher than 50°; the rich dark green of the leaves contrasting with the golden fruit appealing equally to the eye and the palate, the fruit being delicious when thoroughly ripe. I prefer half-standard trees to those trained on walls, a double row of trees in a span-roof of 100 feet being a picturesque sight. The cultivation and pruning are simple enough, the most exacting work being the destruction of scale; moderate and careful attention will, however, effect this. If any of your readers take an interest in the cultivation of this delightful tree, they should procure the Horticultural Congress papers by Thomas Rivers of Sawbridgeworth—T. FRANCIS RIVERS.

#### TWO RARE PITCHER PLANTS.

NEPENTHES EDWARDSIANA AND N. VILLOSA.

NEPENTHES villosa and N. Edwardsiana are found growing on the great mountain of Kina Balu in North-Western Borneo, and together with N. Rajah and N. Lowii, were long ago figured by Dr., now Sir Joseph Hooker, in vol. xxii. of the Transactions of the Linnean Society of London. These fine illustrations were copied, of a reduced size, and coloured in St. John's “Life in the Forests of the Far East,” vol. i., a book which all who are interested in Borneo should read.

Speaking of these plants, St. John, vol. i., p. 334-5, says, “As we ascended [Kina Balu] we left the brushwood and entered a tangled jungle in which few of the trees were large. The spur of the mountain became very narrow, sometimes not much wider than the path, and was greatly encumbered at one part by the twining stems of Nepenthes Edwardsiana. This handsome plant was not, however, much diffused along the spur, but confined to a space about a quarter of a mile in length and it clambered upon the trees around with its fine pitchers hanging from all the lower boughs. We measured one plant, and it was 20 feet in length, quite smooth, and the leaves of a very acute shape at both ends. It has a long, cylindrical, finely frilled pitcher growing on every leaf. One we picked measured 21½ inches long by 2½ in breadth. They swell out a little towards the base, which is bright pea green, the rest of the cylinder being of a brilliant brick-red colour. Its mouth is nearly circular, the border surrounding it being finely formed of thin plates about a sixth part of an inch apart, and about the same in height, and both of a flesh colour. The handsome lid is of a circular outline. The dried pitcher forwarded to Dr. Hooker only measured 18 inches. The plant is epiphytal, growing on Casuarinas (species nova). The pitchers of the young creepers precisely resemble the older ones, except in size.” It is to be hoped that this splendid plant will be introduced by some of the explorers of the new North Borneo Company, in whose territory this great Pitcher Plant mountain stands.

N. villosa is found at an altitude of from 9000 to 10,000 feet, and is a strong-growing terrestrial species with rounded pitchers densely covered with short hairs. The rim and lid of the urns resemble those of N. Edwardsiana, but the swollen or lower part of the pitchers are of a lovely rose colour, not unlike that of a well-ripened Royal George Peach in colour, but a little rougher in texture. The largest pitchers are about 5 inches long by 4 inches broad.

The five days journey from the N.W. coast to this mountain is by no means an easy undertaking, and unless the explorer should time his journey so as to be on the spot just as the Nepenthes are at their best stage of growth for removal, his chances of introducing these noble plants alive to Europe is of the most remote kind.



It is pleasant to know that the life history of these most interesting plants has lately received the most successful attention of Dr. Macfarlane

that Mr. W. E. Dixon has in preparation an elaborate historical paper on this interesting family, the publication of which is awaited with much

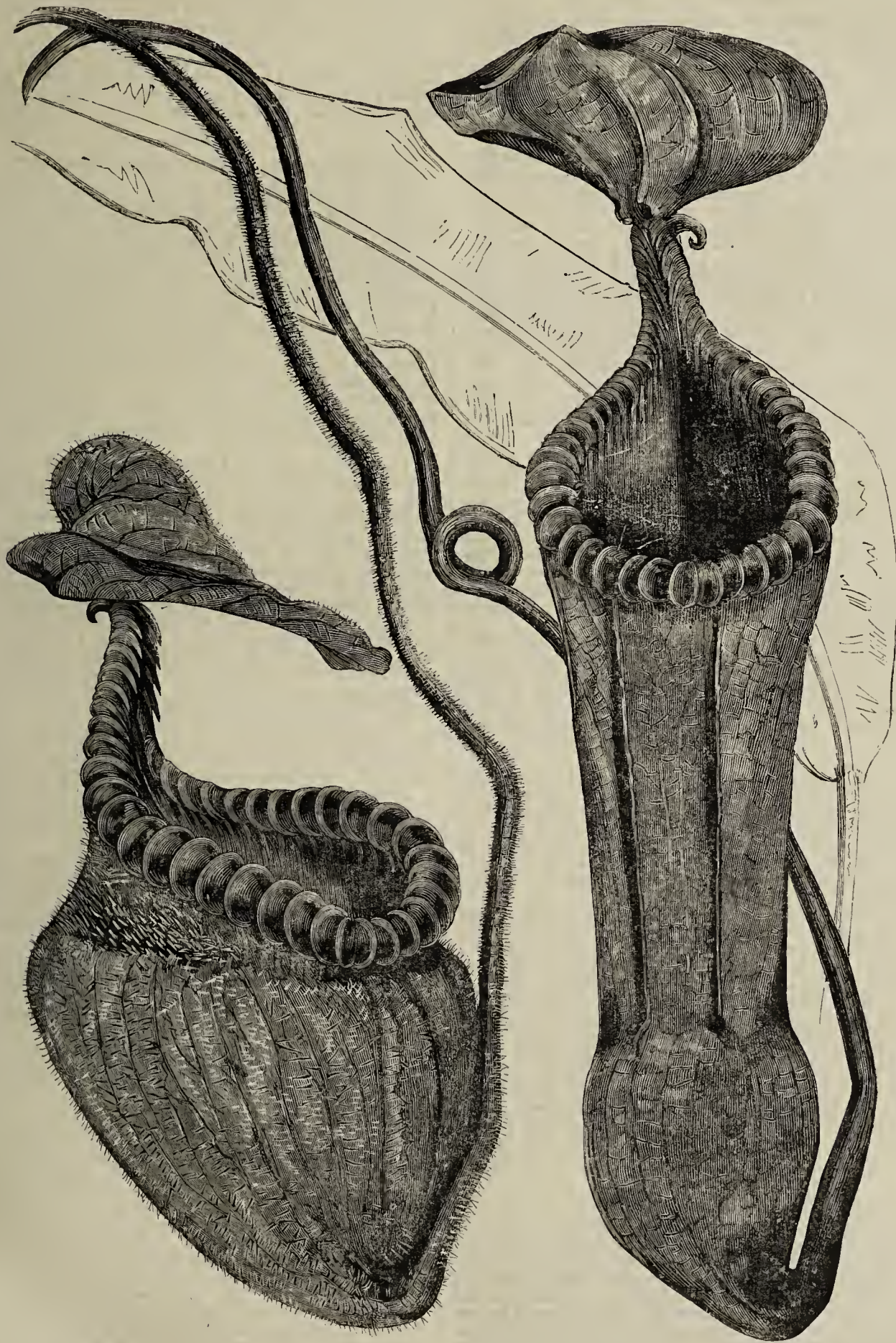


Fig. 12.—*NEPENTHES VILLOSA* AND *N. EDWARDSIANA*.

of the Botanical Gardens, Edinburgh, where also Mr. Lindsay has reared many distinct hybrids of botanical interest; and lastly I am glad to know

interest. As will be seen from the above careful measurements, our illustrations (fig. 12) are considerably below the natural size. The



pitcher on the left hand is *N. villosa*, that on the right *N. Edwardsiana*.—F. W. B.

### ROYAL METEOROLOGICAL SOCIETY.

THE annual General Meeting of this Society was held on Wednesday evening, the 20th instant, at the Institution of Civil Engineers, Mr. R. H. Scott, F.R.S., President, in the chair.

The Secretary read the report of the Council, which stated that the past year had been one of great activity, as the eight Committees which had been appointed had met frequently, and had done much for the advancement of meteorology. The number of Fellows on the roll of the Society is 537.

The President (Mr. R. H. Scott), in his address, said that as he had treated of land climatology in his previous address, he proposed to deal with marine climatology on the present occasion, and to take up the subject at the point where he had left it in his paper, "Remarks on the Present Condition of Marine Meteorology," printed in the Society's "Quarterly Journal" for 1876. He enumerated the various investigations which had been announced to be in progress at that date, and specified the several outcomes of these inquiries which had seen the light during the ten years. The "Meteorological Charts for the Ocean District Adjacent to the Cape of Good Hope," published by the Meteorological Office in 1882, was first noticed, and the methods of "weighting" observations of wind, &c., employed in that discussion were fully explained, as well as the mode of representation of barometrical results. The "Charts Showing the Surface Temperature of the Atlantic, Indian, and Pacific Oceans," published in 1884; and those of barometrical pressure, now in the engraver's hands, were next noticed, and it was announced that the Meteorological Council had decided to undertake the issue of Monthly Current Charts for the entire sea surface. The Wind Charts, published by the late Lieut. Brault of the French Navy, were next described, with an expression of the profound regret with which the intelligence of his premature death in August last had been received by all meteorologists. The Wind Charts and Pressure Tables issued by the Meteorological Institute of the Netherlands were then explained, and also the publications of the Deutsche Seewarte at Hamburg—"The Atlas of the Atlantic Ocean," &c. The series of "Monthly Charts for the Atlantic and Pacific Oceans," issued by the Hydrographic Office, Washington, were then described, and the present series of "Pilot Charts," issued by the same office were explained.

As for projected work in 1886, Mr. Scott stated that the daily maps of Atlantic weather for the year of the circumpolar expeditions were now complete, and were being engraved, a process which must take several months. The German Office had undertaken the preparation of daily weather maps for the same period for the South Atlantic. The Meteorological Office had also taken up the marine meteorology of the Red Sea. The Dutch Institute had announced its intention to publish an atlas for the Indian Ocean.

In conclusion, Mr. Scott stated that there still existed a lamentable want of data for the Pacific Ocean, but that, thanks to the energy of the Canadian Government in opening up their new Pacific Railroad, it was to be hoped that every year would bring a greater amount of traffic to British ports on the Pacific coast, and, therefore, a greater number of observations to the Meteorological Office; while from the existing trade to San Francisco a mass of materials was quickly accumulating, for certain routes at least, over the vast area of the Pacific.

The following gentlemen were elected the officers and Council for the ensuing year:—President, William Ellis, F.R.A.S. Vice-Presidents, George Chatterton, M.A., M.Inst.C.E.; Edward Mawley, F.R.H.S.; George Mathews Whipple, B.Sc., F.R.A.S.; George Theodore Williams, M.A., M.D., F.R.C.P. Treasurer, Henry Perigal, F.R.A.S., F.R.M.S. Trustees, Hon. Francis Albert Rolfe Russell, M.A.; Stephen William Silver, F.R.G.S. Secretaries, George James Symons, F.R.S.; John William Tripe, M.D., M.R.C.P.Ed. Foreign Secretary, Robert Henry Scott, M.A., F.R.S., F.G.S. Council, Edmund Douglas Archibald, M.A.; William Morris Beaufort, F.R.A.S., F.R.G.S.; Arthur Brewin; Frederic William Cory, M.R.C.S.; Henry Storks Eaton, M.A.; Charles Harding; Richard Inwards, F.R.A.S.; Baldwin Latham, M.Inst.C.E., F.G.S.; John Knox Loughton, M.A., F.R.G.S.; William Marcet, M.D., F.R.S., F.C.S.; Cuthbert Edgar Peek, M.A., F.R.A.S., F.R.G.S.; Captain Henry Toynbee, F.R.A.S.

### MILDEW ON ROSE TREES.

I AM glad to see that the subject of mildew on Rose trees is once more cropping up in your columns. I have long intended to give you my experience of the last season, but many things have conspired to prevent me. To be brief, I can say fairly that I have not had any mildew outside and very little in. I have not used a grain of flowers of sulphur, nor had occasion to. I am sorry to say that I cannot advance any reason for my immunity so far as outdoor plants are concerned, as I have treated them in my usual way. Of course I must admit that the summer was very dry, but so was that of 1884. Can the low night temperatures have had anything to do with it? Here we had frost every month in the year except January.

I found that by strict attention to ventilation I was able to "do without" mildew in my small unheated greenhouse. My constant aim was to keep the atmosphere as dry as possible. Some little time ago I could not agree with Mr. Bardney about the harmlessness of softsoap. I think now that the difference arose from the fact that Mr. Bardney grows his trees in

a heated house, and that after having syringed at night the foliage would be dry before the morning sun, shone on it. In an unheated house the leaves would not be dry, and would thus be liable to injury from burning. I do not think that gypsum would do the Rose trees any good or any harm either so far as mildew is concerned. Some of the much-advertised fertilisers have a large quantity of it in their composition, so it can hardly be hurtful. I have tried nitrate of soda, but it did not seem to make any difference in the right direction; indeed, I think it made matters worse, as I have noticed that mildew is very partial to strong young growth such as would be produced by a stimulating manure like nitrate of soda. Of course I am glad to have escaped my enemy this one season; but will somebody please tell me why I have escaped?—T. C. CLAYTON.

### CANKER IN FRUIT TREES—THE COBHAM APPLE.

ALLOW me to express my thanks to all the correspondents who have given us their opinions on this subject. It was not my intention to trespass on your space or patience with any further remarks, as it is evident if I felt inclined to follow each writer, and comment upon his opinions, it would result in leaving the matter undecided. There are a few matters arising out of the discussion that I will refer to with your permission. A correspondent (I have not all the numbers of the Journal by me to refer to for names) asked where he could obtain trees of the Cobham or Pope's Apple. It is included in the catalogue lists of Messrs. Bunyard and Veitch, and possibly others. I believe if it was more generally known and grown that English Apple growers would be able to supply the home markets where Americans do at present. There is a reference to a paragraph of a tree of mine on page 132, February 14th, 1884. Last year it was equally overburdened, and I now enclose one of the Apples as a fair specimen in comparison with Blenheim Orange as they grow with me.

Another correspondent, I think, asked what was my remedy for canker. This has been given on two former occasions on page 132, February 14th, 1884, and page 222, September 10th, 1885. I have found the following effectual on trees that are not too large to be overhauled. Cutting off all cankered wood where it can be spared, or cutting out the mound to a clear ring of bark on branches that cannot well be spared on account of spoiling the balance and disfiguring the trees, and then thoroughly dressing every bit of bark with Gishurst compound or other insecticide mixed into the consistency of paint with quicklime and applied with a painter's brush, or for expediency and support against weak wood I work a brush on each side of the bough at the same time. I repeat "thoroughly," for if any portion is left untouched the insects may escape to breed and spread, and as some of these mites, acari, or whatever they are, which I contend start canker, only occupy about a forty-thousandth part of an inch of surface, let it be understood.

I am much obliged to Mr. Harrison Weir for his correction on page 567. I wrote from memory, and as it is nearly two years since the article appeared, and I have not the number to refer to, I must allow him to know best. He further confirms my observations and experience.

I am also much obliged to "A Thinker" for the amount of thought he put into the subject on page 536. If he had gone no further back than page 222 he would have found that I have not "confined my observations to my own trees," by some thousands probably. It was this fact that made me feel so confident that, no matter from what part of the kingdom I obtained specimens, I believed I could trace the result to insects. If your correspondent will look back to page 132, February 14th, 1884, he will find that the Astwood Amateur Gardeners' Society discussed the subject at four or five meetings, members bringing their own specimens, which I placed under the microscope. It was the complaints of others that induced me to take up the subject, and not as some may suppose, that I am most unfortunate in being troubled with more than my share of canker. It has been a most interesting study, but it has occupied too much of my time. I am thoroughly acquainted with the "genuine" canker and the ulcerations; the latter is generally, if not always, caused by American blight. Why is it called the "American" blight? I never remember seeing it in America. Was it not known before America was discovered, I wonder, or how introduced?—J. HIAM, *Astwood Bank, Worcestershire*.

[The Cobham Apple sent by Mr. Hiam is a fine well-coloured example. It is the same variety as described by Dr. Hogg in the "Fruit Manual" as follows:—Fruit large; ovate, handsomely and regularly formed. Skin clear yellow, tinged with greenish patches, and strewed with dark dots; on the side next the sun it is marked with a few faint streaks of crimson. Eye large and open, like that of the Blenheim Pippin, and set in a wide and plaited basin. Stalk short, deeply inserted in a round cavity, which is lined with rough russet. Flesh yellowish, tender, crisp, sugary, and juicy, with a rich and excellent flavour. A very valuable Apple either for the dessert or culinary purposes; it is in use from November to March. This variety has all the properties of the Blenheim Pippin, and is much superior to it, keeps longer, and has the great advantage of being an early and abundant bearer. An excellent dessert Apple, with somewhat of the flavour of Ribston Pippin. September to January. Dr. Hogg met with this excellent Apple in the neighbourhood of Sittingbourne, in Kent, about the year 1842. The account he received of it was, that the original tree grew in the garden of a cottager of the name of Pope, at Cellar Hill, in the parish of Linstead, near Sittingbourne. It was highly prized by its owner, to whom the crop afforded a little income, and many were the unsuccessful applications of his neighbours for grafts of what became generally known as *Pope's Apple*. The proprietor of Pope's cottage built a row of other dwellings adjoining, in the gardens



of which there were no fruit trees, and, for the sake of uniformity he cut down Pope's Apple tree, notwithstanding the offer of 20s. a year more rent to spare it. The tree, being condemned, was cut down in 1846, at which period it was between fifty and sixty years old. The name of Cobham was given to it by Kirke, the nurseryman at Brompton by whom trees were distributed.]

### AN ORCHID SOCIETY.

THERE seems a desire on the part of a good many people that there should be steps taken to procure the formation of an Orchid Society, and for many reasons it seems desirable that such a society should be formed. It would of course be necessary that the society be supported and acknowledged by all, or at least the great majority, of the leading Orchid cultivators, importers, and all the leading nurserymen and recognised lights in the Orchid world. This will be the only way in which the society can be as useful as anyone desirous of starting it can wish.

Nomenclature should be submitted to the society, and by that means there might be some reduction in the endless multiplication of "variety" names, which at present are given so freely by one and all of the importers or cultivators of Orchids in our land. All varieties should be submitted to the society before being honoured with distinctive names, which in some cases at the present time are bestowed without enough to warrant them being given.

Then I should imagine that such a society as is proposed would endeavour to hold Orchid exhibitions in various parts of the country, and in order to do so a fund would need to be raised to enable prizes to be offered. Of course such awards to Orchids as are at present bestowed by the Floral Committee of the Royal Horticultural Society in the shape of medals and certificates would be awarded by the proposed Orchid Society. The goodwill and co-operation of the Royal Horticultural Society would of course be looked for, and doubtless will be accorded by the majority of its members.

It would be very necessary that, as far as possible, a National Orchid Society be formed, wherein Orchid cultivators of all degrees and from all quarters would find a welcome, and where no signs of trade or other jealousy would be allowed to crop up. Orchid cultivation is becoming very general, and in view of the ever-increasing importations, and the lowering in price of many fine Orchids, also the increased amount of knowledge being circulated regarding them—a knowledge that tends to make people aware that many Orchids are very easily and cheaply cultivated—it seems that a still more general culture of them will mark the future, therefore an Orchid Society is one of the horticultural events that seems probable at no distant date.

I have no doubt all who are really anxious to see real and permanent good result from the formation of such a society will come forward at the proper time with support of all necessary kinds, whether advice, pecuniary aid, or exhibits when the society has reached the length of holding meetings.—A CULTIVATOR.

### THE INSECT ENEMIES OF OUR GARDEN CROPS. THE APPLE.

OUR forefathers, excellent men in their time and way, cannot be credited with the merit of being accurate observers of Nature; no, supposing we were to go back but a century or two. Hence comparisons between the climate of our island now and in the past can never be made without some measure of doubt, yet we are tolerably safe in assuming that, if variable, it is on the whole more equable than once it was; the summers are not so hot, the winters are not so cold. I have been asked how the insect pests of our gardens have been affected by the change. I am inclined to think it has cut both ways, as we say. Evidence proves that mild and moist winters are unfavourable to insect life generally in gardens or out of them; the reasons need not be detailed. Thus far we are the gainers. On the other hand, warm long summers lead to a rapid multiplication of some species which at present are of comparatively little trouble to us. Now, with reference to the Apple, the yearly crop of which, even in these small islands, amounts to a considerable sum of money. I believe we should be right in saying that, apart from the admirable methods of dealing with insect enemies, of which formerly people knew nothing, it is a tree less infested than it used to be, especially by caterpillars. True, some species new to us have appeared on our Apples from time to time, but they have been kept under, and we have learnt a good deal through them. At all events, we have advanced beyond the careless modes of fruit growing once prevalent, when small heed was taken to obtain the full yield from an orchard, and some yearly loss, more or less, was taken for granted, but the margin of profit forbids such easy going now.

The large and usually conspicuous feeders on the Apple tree in one stage or other of its growth may take rank before the lesser fry as belonging to a nobler group of insects, yet in fact many of the small species are most to be dreaded because of their numbers and activity. I have had shown to me, with looks of apprehension that provoked the smile, the almost adult cater-

pillar of the eyed hawk moth (*Smerinthus ocellatus*), a creature which, being about 2 inches long, might be supposed to consume a large number of leaves; but it is not a ravenous eater compared with some big caterpillars, nor is it at all usual to discover this species abundantly in one spot. The eggs are distributed one by one generally on trees and shrubs. The preference of this species is given to Willow and Poplar, but it does occur on Apples, especially in low-lying orchards, feeding in July or August. The caterpillar, of a greenish white, seven-striped, and having a blue horn, is best removed early in the morning, when, probably to aid the digestive process, it reposes with head erect. Or it may be that this peculiar attitude is taken up to deceive the birds. In books detailing the Apple insects of the continent, mention is made of the Hawthorn butterfly, or black-veined white, as a species frequently observed infesting the Apple, and



Fig. 18.—*Bombyx neustria*. (See page 72)

since the caterpillars live in colonies they might strip young trees if left alone. With us at present this butterfly breeds only upon the Hawthorn, and, thanks to collectors perhaps, it is scarcer in Britain than formerly. Then, again, there is the insect oddly called the gipsy (*Bombyx dispar*) very rare here, well known on the continent. By the Germans the shaggy large-headed caterpillar is styled Grosskopf. During autumn the females lay patches of eggs upon the Apple bark, from which companies of the larvæ appear in spring and infest the buds while they are expanding.

That destroyer of so many trees throughout Britain, the powerful-jawed long-lived caterpillar of the goat moth, may occur within the wood of Apple, but it has not been observed by me. A kindred, though smaller insect, the leopard (*Zeuzera æsculi*) is a foe to our fruit trees, but seemingly likes the Pear better than the Apple. The late Edward Newman noticed that trees in which this caterpillar is boring will for a time bear better than usual with a sort of spasmodic energy, and may live many years, unless the tree is brought to the ground by the wind owing to the presence of the hollows in trunk or branches which open here and there to the outer air. I have repeatedly seen orifices in the bark of infested trees, besides those larger ones that the leopard leaves when it emerges as a moth. It is scarcely probable that the caterpillars migrate from tree to tree, and these holes of varied size may be designed to admit air. To us they are of advantage, since by judicious insertion of a flexible piece of wire the insects may be either drawn out or crushed, also by help of a syringe tobacco water, or a soapy solution, can be thrown up holes that lead to galleries beyond reach. Some advise a hunt for the eggs during the season the moth is out—that is, in July and August, but really this is of little use, for by her ovipositor the female thrusts them under strips of loose bark where they are hidden from view. At first they feed on the wood and the inner bark, but are soon strong enough to begin their mines, which are enlarged as the caterpillars grow, and it is believed that this life continues nearly two years. It is a species which would do much more mischief did not the showy spotted moth fall a frequent prey to birds and bats. Those moist places that appear upon trees that have been injured by this insect sometimes warm with mites; they, of course, are not the cause of any mischief, but a consequence of the harm previously done.

Popular authors who have written upon the gold-tailed and brown-tailed moths have given us some trouble by confusing the two species, and the Latin names also have been interchanged. No doubt the insects are much like each other in all stages, but it can be definitely asserted that it is the brown-tail (*Liparis chrysorrhæa*) which has been supposed to be hostile to fruit trees, the brother species seems to keep steadily to the Hawthorn. There is one important point of distinction—both hibernate, and the juvenile gold-tail when autumn gets chilly retires to a silken cell he spins, in which he leads a hermit's life until the spring. On the other hand, the caterpillars of the brown-tail, having kept together from infancy, form a common abode with several apartments, and there they abide through the cold weather, or the damp, as it may be. I have observed that a rainy winter kills many colonies. Herein lies an advantage to whoever may aim at the destruction of the species where it is injurious. Nothing is easier than to clear off these nests and burn them after the leaves have fallen. In France and Germany, however, there are two



broods yearly, and the insect does still haunt various fruit trees, the Apple among them, as it once did about Kent, and probably other English counties, but now it occurs here solely on Blackthorn and Whitethorn. For another reason it is a caterpillar unwelcome in gardens or orchards. At every moult a number of loose hairs are sent floating which cause irritation to the human skin.

The lackey moth (*Bombyx neustria*, fig. 13; see page 71) lays its eggs every year upon the Apple, though this is not its sole food, and the colonies of caterpillars are numerous some years, their webs being hidden often in the fork of a branch, whence they issue forth to feed; called lackeys, perhaps from their going forth in a sort of procession, but it has been also said that they may have been likened to the striped garb of livery servants—far-fetched this. It is a limp caterpillar, unmistakeable from its blue head with two black spots resembling eyes, and stripes or lines down the back, a central one of white, on each side of it others of orange, blue, and black. After the third moult, about the middle of summer, the caterpillars scatter. The best time for clearing away their nests is during May, if previous measures have not been taken against them while young, as by syringing the trees. Also the bead-like circles of eggs may be detected on the branches in winter.—ENTOMOLOGIST.

### HORTICULTURE IN 1885.

I HAVE for some years been accustomed to review at the commencement of each year the principal points in connection with our favourite pursuit which have struck me during the past year; and although the same course has been adopted by your correspondent who signs himself "A Thinker"—are not most of us thinkers?—yet I do not depart from my usual custom, as we do not travel on the same lines or discuss the same subjects. My task is much more commonplace, and in truth I have to deal more with a narration of facts than the discussion of questions which do not fall within my ken. I am but an "individual" who, in a humble way, tries to bring forward some facts which, ere the year grows much older, may as well be gathered up and not forgotten. I have written "individual," to which my friend Harrison Weir objects rightly. One is reminded of the story of O'Connell, whose vocabulary of abuse was very extensive, and who undertook that he would silence one of the Dublin "fish fags," who were as celebrated in this way as the Billingsgate fish wives. After they had been firing away at each other for some time, and the "Liberator" began to be in despair, he turned to his opponent and in thundering tones cried out, "You're nothing but an individual." This finished the battle. She succumbed, and left O'Connell victor.

It is an age of Congresses, and the past year has witnessed two very successful ones in connection with horticulture. Orchids and Pears have both been considered worthy of being so honoured, and there can be but little doubt of their usefulness and success. Orchids are, it is true, the aristocrats of Flora's kingdom, but their extended culture, consequent upon the better knowledge of their requirements, has given them an interest to thousands who never formerly dreamt of the possibility of growing them, are now keen in their culture. We have often wondered what is the state of those habitats from whence come the immense importations to which every year witnesses, and by many it has been thought that they must be denuded of plants; but I believe this is a fallacy. The richness of tropical vegetation, the ready manner in which seeds are produced and scattered, the rapidity of growth in tropical climes prevent this; and it is a curious fact, that although Orchids are wonderfully developed under cultivation, their flowering stems increased in number and the individual flowers in size, yet that they are difficult to seed, while in their natural condition they seed very freely. The stories that are told about collectors burning what they could not take away is one of those delightful inventions which amuse some and horrify others. The Orchid Congress has probably suggested the idea which is now put forward of an Orchid Society. We all know how special societies tend to encourage the growth of the flower they take in hand, as witness the National Rose and National Chrysanthemum Societies. Orchid growers, as a rule, would not care a great deal for large money prizes, but medals for excellence of cultivation rather than the introduction of new varieties would be greatly prized. It would not be difficult to work it out on the lines of the Societies named, but it should be regarded as a *sine quâ non* that it should be connected in its metropolitan doings with South Kensington. Whether it would do much as far as our provincial towns are concerned is questionable. The exhibition of Orchids at the Whitsuntide Show of the Manchester Botanical Society far exceeds anything we have in London, and it is a matter of doubt as to whether any extra encouragement would bring more Orchids forward. However, these are things connected

with the future, not the past, although the past has led me into this digression.

The Pear Congress did not excite so much interest as the Apple Congress of last year, probably because the commercial value of the latter is greater, and it is more everybody's fruit than the Pear; yet a good Pear is a highly prized fruit, and when we read that upwards of 740 varieties were exhibited, there is surely work for the experts to do in weeding out a vast quantity of worthless sorts and in fixing the synonyms of "too-much-alike" Pears.

The past year has produced, as every year does, many new plants, both introductions from other countries and hybrids raised in our own country. These have been in all departments of horticulture—in stove, greenhouse, and hardy plants. It is becoming every year more and more evident that there is an immense variety in the plants of the same species in their native habitat, almost as great as is to be found in the cultivated flowers of our gardens, and hence even amongst Orchids there are continually appearing novel and beautiful forms, thoroughly distinct from those we already possess. We get white *Odontoglossums*, as in *O. vexillarium* *Measureanum*; while the hybridiser gave us the same results, as in Mr. Seden's *Calanthe Sedeni candidibulum*. Yet, taking all things into account, I do not think that anything calling for extraordinary notice has made its appearance—nothing so sensational as *Anthurium Andreanum* or *Vanda Sanderiana*.

Florists' flowers (properly so called) have held their own, although it was a very trying year. The prolonged period of drought was a prolific cause of thrips and aphids in a great many plants; hence the Dahlia Show at the Crystal Palace showed a great falling off in quantity and, indeed, in quality also. I heard one very experienced grower say that he thought each bloom of Show Dahlias must have cost half a guinea to produce! the labour of watering, &c., had been so great. Of the Rose season I have already written, and have stated that it was not remarkable for the production of any very great novelties. Gladioli have been more largely shown, and many new varieties have been certificated. A good deal has been said about Lemoine's seedlings, but as yet they do not seem likely to elbow out the varieties of the *Gandavensis* breed. They are deficient in the length of spike, and there is at present no great brilliancy of colour. With me, too, they have the disadvantage of not blooming until very late, so that many of the blooms succumb to the frost, much in the same way as *Schizostylis coccinea* does. They are planted in the border in front of my greenhouse, are left there through the winter, and so can come up when they like. When I mentioned this to Mr. Gumbleton, who grows them largely, he was much surprised; but then Cork is much warmer than Kent, and not only will things flourish out there which we cannot attempt, but those that do flourish are much earlier. But of all florists' flowers, that which has during the last few years made the most rapid progress is the Chrysanthemum. In all parts of the country it has been fostered. Societies have sprung up and exhibitions held, while the National Society, formed on the same lines as the National Rose Society, has been greatly developed, and has done much to encourage their growth. This is not to be wondered at—it is everybody's flower. It comes at a season of the year when flowers are scarce, and now what with early and late-flowering varieties this season is prolonged for many months. In the Japanese section there has been a very large accession of new varieties—so large as to be bewildering—and I daresay, as in most florists' flowers, they will require considerable weeding out. Amongst the incurved varieties the novelties have been sports from other flowers and not seedling varieties; indeed, taking the prescribed model as a standard, it is hard to say where any improvement is possible, unless brighter colours could be introduced. Amongst reflexed flowers the palm must be given to *Cullingfordi*, very bright in colour and excellent in habit. In the Pompon sections there has not been much of novelty; indeed, this is most to be found in what are called Japanese Anemones; but whether the novelty is accompanied by beauty is, I think, very questionable.

Notwithstanding the depression which has been so universal, the interest in horticulture has been well kept up. Unfavourable seasons have been fatal to many societies, but others have taken their place. The increased number of horticultural publications evidences an increased interest in the pursuit, and also a wider area over which that interest is spread. These penny periodicals are marvels of excellence and cheapness, and those of us who can look over half a century of horticultural life may well expatiate upon the advantages which lovers of gardens now have. It can be from no lack either of teachers or teaching that mistakes are made in gardening, although I daresay it will be a matter of question when it is true that "in the multitude of counsellors there is wisdom," and when "too many cooks spoil



the broth." Amongst the means that have during the past year been adopted to advance the interests of horticulture have been the evening conversaziones of the Horticultural Club. We hope that there may be an increase of members consequent on this, for in many ways the Club is designed to meet the wants of horticulturists.

There is one point which in the review of the past is ever powerful—the reading of the death-roll, and the past year has taken away from us many whom we could ill spare. It is a testimony to the healthfulness of the calling that amongst them were Mr. Ellacombe, who died at 95; Mr. Chater at 84, and Mr. Drewitt at 85, and these gentlemen retained their faculties and their love of the garden up to the very end. Mr. Ellacombe was in his 94th year when I had the pleasure of visiting him at Clyst St. George, and a more wonderful and charming example of extreme old age I never saw. His memory was good, his love of his garden as great as ever, and his talk upon his favourite subject as instructive as any listener could wish. Amongst others who have passed away from us were some who were valued and personal friends. In Mr. George Baker of Reigate, the kindly and courteous Vice-President of the National Rose Society and the most enthusiastic of Rose lovers, many, very many, miss a valued friend. Then that king of florists, Charles Turner, has also gone from us. Associated as he has been with my life-long pursuit of florists' flowers, one has had the opportunity of comparing him with others who have travelled on the same lines, and one has no hesitation in saying that he was a head and shoulders above his fellows, and that he has done more to advance their cultivation than all other florists put together. Of him it was true in a floricultural sense there was nothing that he touched that he did not adorn. Every flower he took in hand he improved and increased its popularity. There was not one of them in which his name is not associated with new and improved varieties. No man had greater perceptive powers, and at a glance he could take in the merits or demerits of an exhibit, and, what is rarer still, could see where his own were faulty, which, to tell the truth, they very seldom were. Amongst all those who passed away last year there is no one I have personally more missed or who was a greater favourite amongst his fellows than James Cutbush. He had long presided over the Highgate firm, and had successfully carried out the culture of bulbs, especially the Hyacinth. It was ever a pleasure to meet him. He battled cheerfully against continued ill health, and was ever cheerful and pleasant. It is a great matter to know that in the case of these two firms sons trained in their father's ways still keep the old name up, and that neither Charles Turner nor James Cutbush disappear from our lists of floriculturists. Mr. Chater was long known as a successful rearer and cultivator of the Hollyhock, while Mr. Drewitt long presided over the lovely gardens of Denbies. And so our ranks become thinned, new faces meet us, new acquaintances are made, but will they ever replace the friendships of bygone days? I think not.

And so must end my brief review of the past year, chequered as it must be with its sunshine and clouds. Let us hope that its teachings may not have been lost on all thoughtful readers of the Journal. They need not be if we are wise in our day and generation.—D., Deal.

#### FAIRLAWN HOUSE, CHISWICK.

It has doubtless been the experience of some who have visited large gardens that their very extent has been a source of disappointment. So much is spread before the eye, there are so many surprises, that a sense of bewilderment is sometimes the result. This thought has been suggested by a recent inspection of a small garden, one that lays no claim to pretension, and yet that has a quiet charm. It is situated near to the Acton Green station of the District Railway Company, and stands close to a spot that has an interest for those who are of an historical turn of mind, for near here took place a sanguinary conflict between the Royalists and Cromwellians. The garden contains a good and tastefully arranged collection of Chrysanthemums; some 350 plants being grown then (December), making the little conservatory gay, had an especial charm for lovers of this truly popular autumn favourite; and the display would not have disgraced larger gardens.

The majority of blooms are taken by the gardener, Mr. Davis, from the crown bud, these producing the earliest and finest blooms, those on the terminal coming in for later wood. He is a believer in what is called the cutting-down process, and means to adopt the practice more extensively in the future, plants thus treated producing the greatest quantity of flowers, not perhaps coming up to the exhibition standard, but still valuable for decorative purposes, a point for consideration in private establishments.

I noted a few varieties that were doing well—necessarily space forbids our giving any long lists—and append their names for the benefit of those who wish to grow a collection in a small garden. Those who disregard formality, and do not want to see flowers as though turned out of a mould, find the Japanese the best. In this class we noticed as

especially good Lady Selborne, that snowy-white grand flower, sport from James Salter; Mdle. Lacroix, long drooping sulphur white florets, very graceful and handsome; Madame C. Audiguier, colour deep mauve beautiful, of great size, a magnificent flower; Mdle. Moulise, a large sulphur white flower, with long twisted petals, a fine exhibition flower; Thunberg, pale yellow, twisted florets, very attractive and fine.

Amongst the incurved that old but still most exquisite flower, Princess of Wales, was very attractive with its fine blush-tinted rose flowers; Mr. Bunn, an improvement on the well-known Golden Beverley; Beverley, a fine pure white flower; the sport from Mrs. George Rundle, George Glenny, is a beautiful flower, colour a pale yellow or primrose; Mrs. George Rundle, a fine white; Venus, a very fine peach-coloured flower.

In a house adjacent to that in which were the Chrysanthemums we noted some well-coloured specimen Crotons, Queen Victoria being specially noticeable, that lighted up the house. A few specimens of *Cycas circinalis* were also noteworthy, it made fronds from 6 to 7 feet in length last year, and is very telling as a group plant. It was purchased when the Orleans House fine collection of plants was disposed of. Those effective Tree Ferns, *Cyathea dealbata* and *C. princeps*, deservedly merit notice. Fuchsias, pyramidally trained, are a speciality, and often put in a successful appearance at the local shows. Fuchsias as a rule are not well done at London shows. As might be expected in a place of this description, fruit-growing is not carried on to any extent. A vinery is devoted to that everybody's Grape, Black Hamburgh. A crop of some 200 good medium-sized bunches was produced last season, and the Vines are in capital condition for future requirements. Apples and Pears are grown just to suit only a moderate demand for them, a tree of that valuable late culinary Apple, Damelow's Seedling (Wellington) has borne about 13 bushels of its valued fruit. An unpruned pyramid Pear, Calebasse, some 20 feet high, having yielded 8 or 9 bushels of its large fruits.—B.

#### NOTES FROM A NOTTINGHAMSHIRE GARDEN.

WILL "A. M. B." care for a few suggestions for her herbaceous border from a neighbouring county? as the climate of north Notts and mid-Lincoln must be much the same. At all events we have been enjoying much the same variations of temperature lately as those "A. M. B." describes. Earliest of all here (except the Christmas Roses) are the *Cyclamens Coum* and *Atkinsii*. *C. Coum* had several bright crimson blossoms on the 16th, having already weathered one spell of frost since it began to flower. Since that date (I am writing on the 24th January) it has been covered with snow, from which I hope it will emerge as brightly as before when the thaw comes at last. I am sorry to say that I do not find the later-blowing hardy *Cyclamens* as satisfactory as the winter ones. *C. vernum* gives us a few of its pretty rosy flowers so much larger than *C. Coum*, but it seems to feel the spring frosts, and the clump dwindles and does not increase as *C. Coum* does. *Cyclamen europæum* has so far not grown at all with me; and what I believe to be *C. hederæfolium*, which I brought from Algiers four years ago, though it throws up its large handsome marbled leaves each autumn, does not flower. Indeed, my Algerian plants have not been very successful. *Anemone palmata* comes up every spring, but does not bloom (I have planted one clump of it in peat, where I hope it may succeed better), and *Iris stylosa*, which I keep in a pot in a cold frame, has only bloomed once, and then in the October of 1884, hardly the right time of year.

Then in the spring *Primula rosea*, with its bright pink heads, is very charming. If the sparrows will only abstain from picking off the blossoms it increases very rapidly. From two tiny plants purchased in 1879 I have now a large enough stock to use it freely as a bedding plant for the spring beds, besides having clumps about the garden, where it certainly prefers the moist corners. We also find *Triteleia uniflora* very useful for bedding. It does not seem to mind being moved twice a year. *Primulas cashmeriana* and *denticulata* with their lilac heads form a pleasant contrast to the *Doronicums*, *Adonis vernalis*, and hosts of yellow Daffodils which bloom at the same time.

As to Daffodils and Narcissus, the difficulty nowadays is to choose between them, and though we have over thirty varieties that is but a small collection. Perhaps *pallidus præcox*, *Horsfieldi*, *moschatus*, *Stella*, *Orange Phoenix*, and the double and single *Poeticus* are among the most distinct; but then we cannot do without the delightful *Hoop Petticoat* and the *Queen Anne Jonquil*.

What beautiful colours there are among the species of Tulips, the brilliant orange scarlet *Greigii* and the yellow *Florentine* growing in bunches, and bright *Monstre Rouge Parrot Tulip*, though of the latter we sometimes complain that the flowers open green and do not colour in a cold spring. Then *Phlox setacea* and its varieties make pretty pink carpets for the front row of a border; and *Trillium grandiflorum* with its beautiful white flowers will do for the shady places, and *Megasea* with its big leaves and pink flowers seems to thrive and increase everywhere. Then there are *Crown Imperials* and purple and white *Rockets* and *Flag Iris*. The *Iris* seem nearly as vast a



subject as the *Narcissi*. The beautiful tall *Iris ochroleuca* perhaps prefers a damp situation, but it does well on an ordinary border, and there are many coloured English and Spanish *Iris*. The *Pyrethrums*, double and single, great Oriental Poppies, *Papaver umbrosum* with its crimson flowers and black blotch, and hosts of French and Opium Poppies which seed themselves only too freely. *Delphiniums*, among which *Belladonna* and *Cantab* are the prettiest of the pale blue kinds. Mrs. Sinkins Pink is very useful for cutting from, and so is *Campanula coronata alba*, figured in this week's Journal, and the dwarf *Campanulas pusilla* and *pusilla alba* are charming for the front line, and so are the dwarf *Oenotheras*, the white *taraxacifolia*, and the yellow *macrocarpa*.

*Scabiosa caucasica* is such a pretty soft grey, an unusual colour among flowers. We did not think much of it when it was growing in poor soil, but since the bed has been trenched, fresh soil dug in and replanted, it has rewarded us with a profusion of bloom all the summer. The dwarf *Aster alpinus* is very pretty, and the curious *Eryngium amethystinum* is well worth growing. *Gaillardia grandiflora* is very handsome. The winters have been mild since we have had it, so that we have not been able to ascertain if it will resist a hard frost. We always protect it with cocoa-nut fibre.

Besides *Lilium candidum* would not Orange Lilies—the scarlet *chalcedonicum*, and the buff *excelsum* or *testaceum*—thrive in the mixed border; and the Tiger Lilies, *tigrinum splendens* both single and double? *Lilium umbellatum* is strong-growing, and a richer colour than the Orange Lily, *Lilium croceum*. We grow plenty of *auratum* and *speciosum*, but the former requires peat, and the latter is rather delicate for the mixed border. Then in September the lower-growing Michaelmas Daisies, such as *Aster amellus* and *bessarabicus*, make a pleasing group with *Rudbeckia Newmanni*. *Sedum spectabile*, too, with its bright pink heads is very useful at that time.

For fine-foliage plants there are *Funkias* and *Bocconia cordata*, but the latter requires watching as it spreads so rapidly that it smothers all its neighbours. The soil here is very sandy and dry. We have abundance of water, having a pond and several streams, and as the garden lies low we suffer very much from frost, and lost far more evergreens, &c., than our neighbours in the cold winters of 1879 and 1881. We also suffer very much from weeds. I do not know the Sweet Ash alluded to by "A. M. B.," at least under that name; but I almost despair of succeeding in eradicating ground Elder, Rampion, and Bindweed from the wilder parts of the garden, while Dog's Mercury is rapidly smothering Primroses and Periwinkle in the adjoining wood.—A. M., North Notts.

## PROPAGATING WINTER-FLOWERING CARNATIONS

TREE Carnations are deservedly popular, and to become a successful cultivator of them a beginning must be made early in the year—that is, if it is desired to have good-sized plants capable of producing a profusion of flowers. By the 1st of January of the present year I had some cuttings of *La Belle* and *A. Alegatière* well rooted. These I had secured from some old plants which was not intended for flowering, some old, almost worthless plants in fact, but which in the end produced serviceable cuttings that, if well tended, will make fine plants by midsummer fit for 7-inch pots. Having grown and propagated this section of Carnations with fair success for some years I will detail the system adopted.

Propagation should always be commenced as early as possible in January, since cuttings taken at that time will be comparatively firm and hard, and will root readily in the propagating house, requiring neither bellglasses or frames to keep them close, and if no air be admitted at this season. Throughout January and onward till the middle of February, they are benefited by slight bottom heat—say 60°—and partially plunged, but on no account cover them with glasses or lights. Let them remain open, otherwise they are likely to suffer from damp. For later batches of cuttings I prefer striking them without bottom heat, and for this reason: that with the advancing season the house will be kept somewhat warmed, the cuttings will be of quicker growth and consequently more sappy, which, coupled with the bottom heat, would soon place them beyond recovery. So long as I can procure hard woody cuttings I prefer gentle bottom heat, the cuttings being uncovered; but when obliged to resort to soft cuttings, then I prefer cool treatment, and employ bellglasses, and let it be remembered that the Carnation is a greenhouse plant, in fact nearly hardy, and consequently it is at no time benefited by too much heat. I have never found any cutting too hard or woody to root, but generally the woody cuttings root most freely and quickly. This is not so widely known as it ought to be, or we should see more Carnation flowers during the dull months of the year. Not infrequently do the inexperienced deliberately cut off that portion of the cutting—i.e., the heel—which is the readiest to emit roots. In all cases, then, where possible, strip the cutting off with a heel attached, for though a cutting severed at a joint will root, the chances are greatly in favour of the former method. Let the cuttings be from 3 to 4 inches long, though it will not be possible to get them of this length from all the varieties, owing to the difference of habit and growth, some being very erect growers, as *A. Alegatière*, and others, as *Miss Jolliffe*, of dwarf bushy habit. Still, whatever may be the style of growth, it is always policy to wait for fair-sized cuttings before making a start.

For propagating purposes the soil I use is sandy loam, with about half an inch of coarse dry silver sand on the surface, and, having inserted the cuttings I give sufficient water to penetrate the whole of the soil, and allow them to remain till the following day before the glasses are placed over them; they will be dry by this time—an important matter, for damp may be said to be one of their greatest enemies in this stage. The glasses should be removed daily and wiped; beyond this they will need little attention. They will not often require water. Thus treated they will root in about a month or five weeks, depending to some extent on the weather, and when ready may be placed into 2½-inch pots, using fairly rich loam, making it rather sandy. If leaf soil is obtainable use it in proportion of one-sixth to that of the soil, taking care that the loam is free from wireworms. The only safe remedy I know is to catch and kill them, and this seems the one recommended by the older florists, as the following quotation from "Hogg on the Culture of the Carnation" and *Auricula*, &c., will show. Speaking of the wireworm among other pests the author says, "I met with two a few days ago, and tried what effect a little quicklime had upon them. I scattered a little over them, but it seemed to make no other impression than to induce them to move from it with more speed than they are accustomed to do. I brought them back to it again, and kept them there for a couple of minutes, but they were still able to crawl from it, apparently not much hurt by it. The only sure way to deal with them is catch and kill them." Its existence, too, is all the more to be dreaded, seeing that it works beneath the surface and is rarely detected save by the plant syringe.

When the plants have become well established in the small pots they should be stopped—that is, if they have attained a height of 3 or 4 inches, so as to make them bushy, or at least produce two or three breaks from the base of the plants; those that require a second stop will speak for themselves. By the end of May they will be ready for 5-inch pots, and should be in frames out of doors, where they may receive abundance of air, and as the season advances they should be staked; and, finally, about July be shifted into pots 6 inches or 7 inches in diameter according to the size of the plant. Use rich fibrous loam chopped fine and not sifted, with about one-third its quantity of well-decayed manure and leaf soil, with sufficient sand added to keep it open. A 5-inch potful of Clay's fertiliser to each barrowful of the compost may also be added.

Some of the best varieties are—*Vulcan*, *A. Alegatière*, *Lucifer*, *Prince of Wales*, all scarlets; while among whites we have *La Belle*, *White Swan*, *The Bride* (Hodges), the last a very fine flower. *Miss Jolliffe* is a pleasing flesh colour, *Mrs. Hawtreay* and *Pride of Penshurst* are good yellows, so also is *Andalusia* when well grown, though I have never been so fortunate with it as *Mrs. Hawtreay*, and my experience of it is that it is not so free-flowering.—J. H. E.

## AGATHÆA CÆLESTIS.

No garden should be without a few representatives of this truly charming winter-flowering plant. It is one of the easiest plants to cultivate, as with only ordinary care it will bloom profusely all through the winter months, while with a little extra attention it may be had with luxuriant dark green foliage and an abundance of its Daisy-like flowers all the year round. The flowers, as the specific name implies, are of a beautiful sky-blue tint with yellow centre, and by way of variety they are very useful for decorative purposes in a cut state. They are produced singly upon the branches of the plant, and are borne on erect and slender stalks. The plant prefers a rich loamy soil such as suits ordinary *Pelargoniums*, and when showing flower it will receive great benefit from occasional supplies of liquid manure. Plants required for winter-flowering should be struck early in spring, and then be potted and grown in a mild heat and gradually hardened off by the end of May. They should then receive a final shift into 6-inch pots, and after they have become established they can be plunged outside in a position well exposed to the sun. The effect of this plunging outside in a sunny position will be to produce bushy plants with thoroughly ripened growth, a state of things which it will be very difficult to obtain if the plants are grown in a house or frame; and besides, if the plants are plunged outside they will not require nearly so much attention as regards watering as they would do if they were otherwise grown, nor will they be so liable to the attacks of insects.

When plunged, care must be taken that they are not allowed to root through the pots, as they might thereby receive a severe check when the inclemency of the weather demands their removal indoors. On the approach of frost in autumn the plants may be taken in, and, if possible, placed in a cool house or pit where the atmosphere is dry and airy, but where a little heat could be turned on if damp or dull weather prevailed. All dead flowers and foliage should then be removed, and with a watering of liquid manure about once a week they will yield flowers in abundance. The only pests which are found to trouble the plants to any dangerous extent are the green and black flies, and these can easily be removed by syringing with diluted tobacco water when the plants are outside, or by fumigation when they are under cover. This plant is sometimes called the *Blue Marguerite*, on account of the great resemblance its flowers bear to those of the popular Parisian Daisy. The plants are members of the same natural order, and the flowers of both are very similar in form, but in all other respects they are distinct. It is a native of the Cape of Good Hope, and was introduced into this country about the year 1759.—PRUNUS.

## COLLINSIA MULTICOLOR.

EVERY gardener knows how difficult it is to keep up a gay appearance during the sort of interregnum which succeeds the flowering of the spring



bulbs, and before the majority of the herbaceous perennials and bedding plants are in bloom. For filling this void the autumn-sown Californian annuals are unrivalled; and, indeed, a succession of sowings would produce throughout the season an effect but little inferior to that obtained by the employment of any other plants.

One of these is *Collinsia multicolor*. It is quite as robust in its habit as the well-known *C. bicolor*, growing from 12 to 18 inches or more high; and its flowers are among the largest and handsomest of the genus, though their colour is less intense than in one or two older species. The foliage is larger and more coarsely toothed than in *C. bicolor*; but it is chiefly by the purplish tint of its floral leaves or bracts, which add much to the beauty of the plant, that it is distinguished from most, if not all, other species. The bracts beneath the lowest whorl of blossoms are cordate, bluntly toothed, and pointed; the middle ones are much narrower, and without teeth; the upper ones quite abortive. The flowers are on rather long pedicels, which, as well as the calyx, are almost free from glands. The segments of the calyx are very narrow, shorter than the corolla, and three-ribbed. The lower lip of the corolla is lilac, but the



Fig. 14.—*Collinsia multicolor*.

pouch-like cavity of the middle lobe is crimson, though externally this tint is hardly visible. The upper lip of the flower is also lilac, but with a large quadrangular white spot in the centre, speckled with bright rosy purple. We retain the name under which this plant was first published, but it is only right to observe that it is now regarded as but a form of *C. bicolor*.

The cultivation of *Collinsia multicolor* is of the easiest description. It is only necessary to sow the seed thinly, in patches, in the open border where the plants are to bloom; and this may be done any time between the beginning of March and the end of April. As the seeds are comparatively small they must not be too thickly covered with earth, especially if of a heavy adhesive nature. In soils of this character it is a good plan to cover the seed with a little pulverised sandy loam.

Besides *C. bicolor* already referred to, there are several very pretty species well deserving cultivation, the most important being *C. verna*, *C. grandiflora* and its recently introduced variety *violacea*, *C. heterophylla*, *C. corymbosa*, *C. bartsiaefolia* and its variety *alba*, and *C. tinctoria*.

*C. verna* is a very attractive early-flowering species, with the lower lip of the corolla of a sky blue, the upper lip being white. It would doubtless be more extensively grown but for the short-lived vitality of the seeds, which renders it necessary they should be sown in autumn soon after being gathered. From this defect *C. grandiflora* and its charming variety *violacea* are free, though the strongest plants are to be obtained by autumnal sowing, as well as the earliest blooms. The variety *violacea* especially deserves recommendation, the colour of the lower lip being much deeper than in *verna*, and the resulting contrast with the white upper lip more effective. *C. heterophylla* resembles *C. bicolor*, but its flowers are of a darker and perhaps less pleasing tint. *C. corymbosa* is very distinct as a species, with flowers in a capitate cluster and having an abbreviated upper lip, but is less showy and effective than those already named. Nor is *C. bartsiaefolia* worthy of more than a passing notice, its colours being somewhat dull; but its white variety is deserving of more attention than it receives, its colour being pure, and its habit so dwarf

that it would be found useful as an edging to taller annuals, though it is, like the rest of the species, comparatively short-lived. *C. tinctoria*, so named from the numerous glandular hairs which clothe the calyx communicating a yellow stain to the fingers when touched, is not yet, we believe, in cultivation.—W. T.

#### NOTES AT MAIDENHEAD.

WHEN recently visiting Mr. R. Owen's nursery at Maidenhead I was much pleased with the white reflexed *Chrysanthemum Boule de Neige*. Mr. Owen had quantities of very useful flowers yet to cut of this, and he considers it the best late white variety yet introduced. Other varieties are still flowering, amongst which may be noticed *Ethel*, *Fair Maid of Guernsey*, besides many seedlings of promise. In another house I noticed a variety called *Cloth of Gold*, seemingly a cross between *C. frutescens* and *C. carinatum*. It is by far the brightest of this section and flowers freely. Ivy-leaved *Pelargoniums* receive much attention, the most noticeable being a very promising salmon-flowered variety with white marking; *floribunda*; *Souvenir de Charles Turner*, a variety of great excellence which will become popular; and a seedling double with flowers  $2\frac{1}{2}$  inches across, one of the brightest yet raised. In another house seedling *Show Pelargoniums* are very vigorous, and something good is expected from them. *Zonals* also are grown in great numbers, with *Primulas* of a choice strain; the colours are numerous, some very rich; also excellent whites of the *Magnifica* strain. One very noticeable was a deep yellow-centred variety with white edging, somewhat like a *Primrose*.

There was a number of useful plants of the old *Eupatorium odoratum* in 6-inch pots admirably adapted for any purpose. A distinct fimbriated strain of *Cyclamens* is likely to become very useful when a little more improved. *Abutilons* are cultivated in large numbers, both seedlings and named varieties of the former; one was flowering of a very deep rich velvety crimson tint apparently of good habit. In a lean-to house were some healthy *Roses* in pots, and others planted out trained to the back wall seemed quite at home. A large collection of *Begonias* has received Mr. Owen's attention for some years past, and many fine seedlings are included.—J. P.

#### LYCASTE LANIPES AT OAKHOLME, SHEFFIELD.

THIS *Lycaste*, which appears to be not very generally grown in collections of Orchids, is now in especially good condition in the beautiful collection belonging to T. Wilson, Esq., Oakholme. It is a favourite with Mr. Hannah, the able gardener, as well as with his employer, and he has for several years past flowered it very finely. At the present time, however, it is better than ever before. He has two varieties, the flowers of one being much purer white, larger, and more waxy-looking than is the other. On this variety we counted thirteen flowers from one growth, each flower being about 5 inches across. The flowers are thrown up from the base of the pseudo-bulb on footstalks about 6 inches in length, and form a dense mass of inflorescence a foot or more across and of a very striking character. On a plant of the inferior variety there are twenty-three flowers produced from two growths. The foliage is very fine, being about 2 feet in length, very dark green, stout and massive, the pseudo-bulbs being from 5 to 6 inches in depth.

Mr. Hannah grows this plant in the East India house with *Phalaenopsis*, *Vandas*, &c., the year round excepting during the time it is in flower. He gives it a very liberal supply of water during the growing season; and in the autumn, after growth is completed, he gradually diminishes the supply, thus inducing rest without taking the plant into a cooler temperature. He gives it as his opinion that this plant, in common with many varieties of Orchids, dislikes any disturbance at its roots. His plants have not been repotted during the last five years, and have each year increased in strength and in the number of flowers produced.

In the flower house at Oakholme there are now several Orchids in flower, and the general effect is very beautiful. Numerous plants of *Calanthe Veitchii* with exceptionally large and strong flower spikes form a fine background interspersed with a number of well grown *Poinsettias*. There are also *Dendrobium Ainsworthii* (a plant of this in a 7-inch pot carrying sixty flowers on three flowering growths); *Dendrobium nobile*, *heterocarpum*, and *D. philippinense* (a plant of this Orchid has not been out of flower for five months); *Odontoglossum crispum*, six varieties; *Odontoglossum blandum*, very fine plants; *O. cordatum*, *Oncidium varicosum*, *Lycaste Skinneri*, *Laelias autumnalis* and *anceps*, large and strong plants; *Cymbidium Hookerianum*, and *Sophranitis grandiflora*. The latter are annually very fine, and have an especial aversion to frequent repottings.

In the East India house is a very fine collection of *Phalaenopsis*, many of them very large specimens, and all of them in the most robust health and vigour. Seldom are they seen so fine. The main points observed in their culture here are at all times a liberal amount of heat combined with a moist atmosphere and freedom from draughts. In this house a fine plant of the singular and very attractive *Angraecum sesquipedale* is carrying five of its large flowers on two flower spikes; the spur or tail to each flower is about 12 inches long. The plant has fourteen leaves, and is apparently without a blemish. *Phalaenopsis Sanderiana* is flowering freely, and is similar in general character to *P. amabilis*, but the flowers are slightly smaller, and have a very pretty shading of light pink appearing as if laid on the white ground colour. The small *Odontoglossum* house has a perfect forest of flower spikes in different stages of development. On a small table having an area of 12 feet by 5 feet we counted over seventy strong spikes. One plant on another table we noticed had seven spikes averaging fourteen flowers to each. Nowhere do we see *Odontoglossums* growing more strongly than at Oakholme.



The large plant stove is always a fine feature here, the collection of specimen Crotons being alone worth a long journey to see. The plants are very large, 6 or 7 feet high, and almost as much through, very clean, and wonderfully bright in colour. Amongst a many good things in this house especially noticeable are fine specimens of *Sphærogynë latifolia*, with twelve full-grown leaves, very massive, and without spot or blemish; *Heliconia aurea striatum*, fine plants, very brightly coloured; *Anthurium Schertzerianum*, a massive plant of a grand variety, throwing up about a hundred flowers; *Adiantum farleyense*, two fine specimens, each about 5 feet over. In another house we noticed *Eucharis amazonica*, candida, and *Sanderiana*, all flowering side by side, the two latter serving as foils for showing up the superior beauty and excellence of the first named old favorite. We also noticed a collection of seedling Crotons raised there, one or two of which are, we believe, destined to become popular varieties, especially so a cross between *C. Weismanni* and *C. Veitchi*.

In the conservatory is a fine collection of late Chrysanthemums, which for some years past has been made a speciality. The varieties principally grown are Princess of Teck, Hero of Stoke Newington, Guernsey Nugget, Jardin des Plantes, Mrs. Howe, Dr. Masters, and Fleur de Marie. Of the two first named numerous large bushes are now—January 7th—freely opening fine flowers in abundance, and bid fair to be very fresh and good for several weeks yet to come. A number of large plants of the Gladiolus-like *Schizostylis coccinea* are very effective. The numerous flower spikes are each about 2 feet long, and the individual flowers 3 inches in diameter. This plant is one of Mr. Hannah's especial favourites, and no one, I believe, succeeds better in its cultivation.—W. K. W.



#### HARDY FRUIT GARDEN.

**BUSH FRUIT.**—Faulty practice in the culture of bush fruit is by no means uncommon, and an instance of it which came recently under our notice was a reminder that a good lesson cannot be too often repeated. Let us once more briefly enumerate the chief points to which it is important that close attention should be given. Gooseberries and Red and White Currants should be planted at least 5 feet apart in the smallest garden, and 6 feet whenever space can be had. Bushes crowded together at 3 or even 4 feet apart either grow into a thicket or are pruned so severely that very little fruit can be had; but 6 feet from bush to bush affords space for full development and for getting among the bushes for all cultural purposes. A few well-grown full-sized bushes will afford more and better fruit than twice the number of small bushes crippled and stunted by excessive pruning. Rich loam or its equivalent in well-manured and carefully prepared soil, is necessary. We have planted in soil with no more preparation than the digging in an ordinary dressing of manure as for a bed of Cabbages with perfect results, and we have had to drain, trench, mix lime, coal ashes, and a double quantity of manure where the soil has been poor, thin, deficient in lime and in stones or gritty matters to ensure success; and let it be understood that one can render success a certainty in any soil. It is, however, highly important that the soil is in such a sound, fertile, porous condition before the planting, because it must not be disturbed afterwards; there must be no digging among the bushes, only an annual dressing upon the surface of manure from the stable, cowyard, or piggery, any necessary hoeing of weeds in summer, and a liberal use of liquid manure during the season of growth. In pruning we remove all growth too near the soil, open out the middle of the bush, spur in side growth upon old branches, and leave new growth sufficiently thinned to let light and air have free play among it. At this season of the year the branches of Gooseberry bushes should be syringed with a wash consisting of soft soap dissolved in hot water and mixed with finely powdered lime and soot. This forms an efficient protection against the ravages of bullfinches. See that the syringing is so done that the branches and buds are quite covered with the wash.

**BLACK CURRANTS.**—The answer best in a deep rich loam, failing which trenches may be filled with rich manure mixed with soil. Plant 6 feet apart, see that bushes have no stems, our object being to develop strong stools from which stout shoots spring annually to replace old growth as it becomes exhausted and feeble. It is hardly possible to enrich soil too much for this profitable fruit, and the bushes must have a plentiful annual surface dressing of manure, and the soil a weekly soaking of sewage or other liquid manure in spring and summer. To be fully successful it is imperative that the soil be well stored with nutriment. If this is not done the bushes deteriorate quickly even in a deep loam. Do not spur Black Currants, but thin out the growths, removing all old and exhausted branches.

**RASPBERRIES.**—The soil for Raspberries requires very similar treatment to that enumerated for Black Currants. It was owing to a failure of a large bed of Raspberries planted by us in poor thin soil that we were induced to prepare trenches of very rich soil, made so by the free use of well-decayed stable manure, and we not only had stout canes 12 feet high, but those canes, headed down to about 4 feet, put forth side shoots

next season that were laden with a crop of fruit that was absolutely marvellous. At the planting the canes were shortened to 18 inches, with such excellent results that we have ever since adhered to the plan. In this note we have striven to show how extra pains in the culture of bush fruit is well rewarded by extraordinary results far superior to anything seen under ordinary practice.

#### FRUIT FORCING.

**FIGS.—Earliest Trees in Pots.**—With bright nights, and the temperature several degrees below freezing point, it is useless to think of increasing the night temperature. Advantage should be taken of sunshine to close early in the afternoon, or from one to two o'clock, with a rising temperature, and if blinds or mats can be drawn over the roof lights at night it will do away with the necessity for sharp firing without running the risk of giving a check that might prove fatal to the crop. The fermenting materials that have been placed about the pots should receive frequent additions of warm Oak leaves on the surface, working them in when turning is considered necessary for maintaining the bottom heat at 75° to 80°. It will be necessary to examine the pots frequently, particularly where they are partially exposed to the parching influence of fire heat, and give a good supply of tepid liquid. If properly drained and placed upon dry brick pedestals there is little danger of giving a pot Fig that is well furnished with foliage and fruit too much water. When fresh fermenting materials are introduced it will be the safest plan to have a little ventilation constantly at the top of the house. Syringe the trees in the morning and early in the afternoon, as red spider may be expected to appear after so much sharp firing. Stop all gross shoots at the sixth leaf, thin outside shoots and useless spray, that the young spurs and fruit may have the benefit of air and light. The thinning of the fruit should also have attention as soon as the most promising and best placed can be decided upon for the crop. Trees that have been some time under judicious treatment show more fruits than they can bring to maturity, hence the necessity of thinning, especially before the fruit takes the last swelling, at which state the Fig sometimes casts its finest fruit, and those left, owing to the check the trees receive, lack the flavour that gives them their value in our finest desserts.

**Succession Houses.**—Encourage a steady progressive growth by giving gentle fire heat and moisture through the day. Keep the borders well mulched, and give plentiful supplies of tepid water to the roots, but carefully avoid a high night temperature until the weather becomes more genial.

**Planting Fresh Trees.**—The present is a suitable time for making the needful preparations, and the trees should be placed into position as soon as possible. A limited space only should be accorded the roots, and even then borders may be made piecemeal. The bottom must be concreted, and have drains with proper outlet. A foot of good clean drainage, and over this place a third layer of turf, grass side downwards to prevent the finer particles of the compost from washing downwards. The compost may consist of turfy loam, rather strong but not very heavy, four parts; old brick and mortar rubbish one part, charred refuse and road scrapings in equal proportions one part, the whole thoroughly incorporated. Two feet depth of compost is sufficient, and when the border is raised to within 6 inches of the intended level, the trees, if in pots, will require shaking out, in order that the roots may be spread over the surface of the new bed, which should be made firm and even. Place 2 or 3 inches of soil over the roots and then water moderately to settle it about them, place on the remainder of the soil and defer mulching for the present. No variety surpasses Brown Turkey for general quality.

**Young Pot Trees.**—Trees that were struck from eyes last season should now be encouraged with warmth and moisture, as future success depends upon getting an early and thoroughly ripened growth. Remove all ground suckers, stop the strongest shoots, and train the leaders to straight stakes. Insert cuttings or eyes of favourite varieties, and plunge in bottom heat. Plants raised from single buds always make the best pyramids, growing on clean straight stems.

**PINES.**—In the fruiting compartments and others which contain plants about entering on that state the heating apparatus must be kept going, and as a consequence a certain amount of dryness will result unless sprinkling or syringing be vigorously enforced, but avoid sprinkling the pipes, taking advantage when they are least heated to well moisten the surroundings. Plants in light and lofty structures will need syringing much more frequently than those in low and damp ones. The necessity for syringing may be ascertained by examining the base of the leaves; if the axils contain moisture none need be given that way until that existing is nearly exhausted. Avoid wetting the fruit during the flowering process, as discoloration of the fruit at the base of the flower proceeds from this cause. The Queen and other varieties for the summer supply will have the fruits emerging from the sockets of the plants. Every encouragement should be given to these to enable them to throw the fruit well above the foliage, attending to watering, bottom heat, &c., and affording a night temperature of 65° to 70°, and 75° in the daytime.

#### PLANT HOUSES.

**Zonal Pelargoniums.**—Plants that have had their stems hardened through being kept dry may safely be pruned without fear of their damping. These should be placed in a temperature of 50° to 55°, and syringed once or twice daily, according to the state of the weather, to assist them to again break into growth. Very little water will be needed at their roots until they reach this stage, when they may be turned out of their pots; the old bulbs of roots reduced by one-half, and the plants again placed in the same or smaller pots. Young stock in 3-inch pots that has been preserved in good condition on a shelf close to the glass



since autumn should now be placed into others 2 inches larger. These plants should have the soil (fibry loam, one-seventh of manure and sand) pressed firmly into the pots to insure a firm sturdy growth. Those placed into 5-inch pots some time ago, and now well established in them, will move forward quickly, and very soon produce their flowers if they can be accommodated close to the glass where a temperature of 55° can be maintained with a circulation of air daily when favourable. Cuttings may now be inserted, and will root freely in small pots on a shelf in a temperature of about 60°.

*Cinerarias*.—Small plants in 3-inch pots that are not showing their flower spikes may be potted, and if well attended to will prove very useful for the conservatory during the month of May. These plants will do very well in any light airy position, in the greenhouse or in a cold vinery, until the weather is sufficiently genial to place them in frames. Supply plants in their largest pots with weak stimulants to assist them in pushing up strong flower spikes and in due time large blooms. Some care must be taken to preserve the foliage of these plants from damping, for if they do not possess good foliage when they are in flower half their beauty is gone. Those with very large flowers may be disbudded, or they have not room to develop properly, and are therefore only a confused mass when the plants have developed most of their flowers. Watch for aphides, and upon their first appearance fumigate the house with tobacco smoke.

*Primulas*.—Where it is a practice to save a little seed annually the plants should now be selected from amongst those just opening their flowers. The flowers should be removed, and the plants placed on a light shelf close to the glass, and they will come into flower again next month, and if given a little artificial manure will push up strongly. It is a mistake if a good crop of seed is required from as few plants as possible to select those for seed-bearing that have become partially exhausted by continuous flowering. Young stock for late spring flowering may now be placed into 4-inch pots. Employ a compost of loam three parts, the other part being composed of leaf mould, manure, and sand. Water carefully, and grow these plants in a temperature of 40° to 45° on a shelf close to the glass. To produce plants for flowering during the month of October sow seed at once on the surface of fine soil in a pan and place it in brisk heat. Fill the pan with light soil, and on the surface about a quarter of an inch of leaf mould that has passed through a fine sieve. Do not cover the seed, but water it with a fine-rose can after it is sown and the pan is covered with a square of glass until germination has commenced.

*Chrysanthemums*.—Where large blooms are required next autumn, or large bushes for decoration, cuttings should be rooted without delay. Select stout healthy shoots from the base for this purpose and insert them singly in thumb pots. The cuttings will root quickly under handlights in a temperature of 50°. When the young plants are rooted they should be gradually hardened and subjected as quickly as possible to cool treatment before they have a chance of drawing up weakly.

*Mignonette*.—Plants that have ceased flowering should have all seed pods removed and the shoots tied down of all that are trained upon standard trellises. These, if kept cool in a light airy position and carefully watered, will soon start again in growth, and in a short time produce large spikes of bloom. A little artificial manure should be applied to the surface of the soil to stimulate them into active growth.

## THE BEE-KEEPER.

### PURCHASING STOCKS.

Those who are intending to become bee-keepers, and who have not already done so, will now be thinking of providing themselves with stock hives, unless indeed they are content to wait and purchase an early swarm. There are several periods which are very suitable for beginning bee-keeping. Stocks can be bought much cheaper at the time of the honey harvest, but then there is the risk of wintering. Again, stocks can be bought in midwinter, and they can be bought in spring, when, however, a considerably greater price will be asked to cover the expense and risk and trouble of wintering them. Midwinter is often recommended as a suitable time, and if precautions are taken but slight objection can be raised. One thing seems to be overlooked by many who advise the purchase of stocks in the winter season, and it is this, that if bees are disturbed they gorge themselves with honey, and if they are unable after this gorging to take a flight dysentery sets in, and the stock may be lost. To avoid this risk bees should never be removed unless there is a strong probability, amounting almost to a certainty, that a fine day will soon occur to enable them to take a flight. Spring, however, notwithstanding the increased price, is the time when stocks can be bought with the least risk of loss by those who have no practical knowledge of bee-keeping.

Before concluding the purchase of a hive several points must be carefully attended to, and what these are it shall be my endeavour to show. Suppose, then, in the month of April it is intended to buy a stock. The intending purchaser should on a fine sunny day go and stand by the side of it and watch the number of bees flying in and out, and if from thirty to fifty a minute return to the hive, a large proportion of them laden with pollen, an almost certain knowledge of two facts has thus easily been ascertained. These are, that the stock possesses a laying queen, and this is proved when the majority of bees are seen carrying in pollen on their thighs, and is strong in bees. It is well, after being satisfied on these points, and if there is any doubt return another day and watch again, to ask on the chance of being told the truth whether the stock fixed on is an old one, or a first swarm, or a cast; if it is an old one, whether it swarmed last year. By these questions you will know that if the stock is an old one which swarmed last year it has a young queen; if it did not so swarm it may have an old queen, which may be so old as to be almost worthless. If the stock was a first swarm last year the queen is almost certain to be an old one, while if the stock was a cast last year the queen is as certain to be a young one. Having asked these questions it is possible to some extent to find out the veracity of the answers by gently turning up the hives and looking at the colour of the comb, which in a last year's swarm or cast will be of a light colour, while in an old stock the comb will be almost black. Other things being equal a hive containing light-coloured comb is far preferable to one containing black, because in the latter many cells are rendered useless by reason of the superfluity of pollen generally found in old stocks.

If, then, a stock can be found which has a young queen, is strong in numbers, and weighs if in a skep some 20 lbs. or 30 lbs., the purchase may safely be concluded, more especially so if the comb is of a light colour and built in a regular form. Such a stock cannot fail, with even moderately good management, to do well, and will probably, whether the owner desires it or not, unless supering is more carefully attended to than can be expected from one who has bees in his care for the first time, send out a strong swarm in May, which will be worth half the price paid for the stock. In the spring a stock must be moved at least two miles from its old stand if loss is to be avoided, and a good way to effect such removal is, if the hive is a common skep, to loosen it from its board some hours before removing it, and at evening gently lift it on to a piece of cheese-cloth, which being tightly bound round it will keep in the bees for a considerable time; and if not more than three or four miles have to be traversed a stick may be put through the handle of the skep, which may thus be carried most easily and safely by two persons, one on each side, and with the total avoidance of jerking and jolting which are sometimes so disastrous to combs when not properly secured.

With due attention to these few points even a novice may, if he is unable to get the help of an experienced man, hope, by thinking for himself and using his judgment, to avoid falling into any of the mistakes which are so often committed by men who purchase stocks merely on the word of the owner that they are sound, strong, and in good condition.—FELIX.

### THE WEATHER.

DURING the past month the weather has been more variable than I ever remember. Although the frost has never been severe, the excessive moisture after the cold but dry summer is telling hard upon *Primulas*, *Polyanthuses*, and *Alpine Auriculas*, *Snowdrops*, and *Crocuses*. My hive roofs being zinc-covered, sustain no injury from either melting snow or rain as do those of wood only, but in order to lessen the loss of bees it is advisable to restore all hives to their normal appearance. If my bees persist in flying out while the snow lies, we lift up the ladder attached to the porch, closing them in, and ventilate from beneath. Bees located in such hives will not suffer from tem-



porary confinement extending over many days, but on no account or pretext whatever should bees be shut in that are located in hives without these provisions. In such cases clearing the ground of snow well in front of hives is the best remedy, and disturb the bees as little as possible during the manipulation.

Notwithstanding the inclemency of the weather recently, a few days may usher in the beginning of the working season. In 1863 our bees collected both honey and pollen from the Snow-drop on the 24th, 25th, and 26th January, a fact not generally known, but in mild seasons Snowdrops do yield honey. Immediately after the first airing or working day, perform all necessary work in cleaning and drying the hives. In consequence of the open winter bees have been breeding, consequently in the consumption of food by the young, and in the adult consuming it for the secretion of wax for the sealing of brood cells.

Bees not very well supplied in the autumn may now be approaching starvation; attention should therefore be paid to ascertain thoroughly the state of every hive, and wherever starvation is imminent feed at once, and in such quantities as will tide the bees over till the time when there is a likelihood of the flowers yielding a supply sufficient to render feeding unnecessary, and at the same time remember that stimulative feeding, or feeding in dribblets, is a destruction to bee life during the welcome but treacherous spring months.

#### ENLARGING HIVES.

In all cases where the hives are not of a size sufficient for the laying powers of the queen steps should now be taken to enlarge those too small, as previously advised. Another thing of importance wherever supers are used is that these should be made from the whitest of wood; bees have an inclination to make their combs of a similar colour to its surroundings. Some bee-keepers use the same supers for years, and as the bees soon darken the cleanest super, that with the accumulation of colour from years' use renders the honey comb the reverse of appetising. Where the honey is used by the bee-keeper, if he is satisfied with used cases or supers nobody has a right to interfere, but in all cases where it has to go into the hands of strangers the clean super is the one that gives the most satisfaction and highest price. Cleanness and quality are the two cardinal points in bee-keeping, both as regards honey and wax. After these comes quantity, if of the first standard, which is obtained in the highest degree without the extractor, honey ripener, spreading brood, reversible frames, excluder zinc, and as many more minor manipulations. During the past fifty years, and I believe for long before, with the exception of what comb foundation has done for us in assisting the bees greatly, there has been neither any improvement in the quality of the honey nor in its quantity from single hives. Doubtless bee literature has spread the knowledge, but has not improved the quality nor the yield. Our large straw hives and Stewarton were then as they are yet, the foremost in the field. We have heard of great harvests being taken through the use of the extractor, but when the evidence came from a trustworthy source the yield did not exceed that of other well-managed hives in similar situations; but, as I have often said, that contests or competitions with bees and hives are futile unless the competition is conducted precisely under the same circumstances as to time and place.

#### WAX.

By this substance I can generally tell the quality of the honey extracted from it, and from the many samples that have passed through my hands I find that many bee-keepers have something to learn regarding both wax and honey before they can be termed proficient in their production. Enclosed herewith is a sample of wax produced from straw hives managed on the oldest system. You will observe that from its beautiful paleness the honey taken from its combs would be splendid. It presents a striking contrast to the sample marked No. 2, as sent out by a dealer in and maker of hives and wax. The production of both honey and wax of the finest quality, and in the greatest quantity, should be the aim of everyone, and we will do our best to assist all to that end, but it must not be at the expense of the wax.—A LANARKSHIRE BEE-KEEPER.

[The samples sent differed widely; one was white and fine, the other brown and coarse.]

#### TRADE CATALOGUES RECEIVED.

William Rumsey, Waltham Cross, N.—*Catalogue of Select Seeds for the Garden and Farm.*

William Bull, King's Road, Chelsea.—*List of Flower and Vegetable Seeds for 1886.*

Eric F. Such, Maidenhead.—*Catalogue of Chrysanthemums.*

Charles Sharpe & Co., Sleaford, Lincolnshire.—*Seed List for 1886 (illustrated).*

W. Piercy, 89, West Road, Forest Hill, London, S.E.—*List of Early or Summer-flowering Chrysanthemums.*

Westerham Nursery and Seed Company, Westerham, Kent.—*Catalogue of Vegetable, Flower, and Agricultural Seeds for 1886.*

H. Cannell & Sons, Swanley.—*Floral Guide for 1886 (illustrated with coloured plates).*

John Watkins, Pomona Farm, Whittington, Hereford.—*List of Seed Potatoes.*

Hogg & Wood, Coldstream-on-Tweed.—*List of Novelties and Choice Seeds for 1886.*

William Paul & Son, Waltham Cross.—*Catalogue of Vegetable, Flower and Agricultural Seeds.*



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Book (*M. G., Darlington*).—Probably the work to which you refer is "Small Farms; How They can be Made to Answer by Means of Fruit Growing," by Rev. William Lea, M.A., published at this office, price 1s., or post free 1s. 1d.

Manure (*Young Gardener*).—We have been favoured with further notes on the subject of your letter, but our pages being full on their arrival, their publication is necessarily deferred.

Shaded Passage (*F. S.*).—Our correspondence is far too voluminous to enable us to remember with accuracy the contents of former letters that have been answered; but so far as we recollect the dimensions of your covered passage we think a flow and return 4-inch pipe its entire length—i.e., two lengths of pipes—would heat it sufficiently for your purpose.

Cyclamens (*A Novice*).—The leaves sent are some of the finest that we have seen, and there is quite as much credit due to you for skilful culture as to the strain. The flowers are of bright and pure colours, but we frequently see larger specimens. However, the strain is a good one, and it is evident you require no instructions as to how Cyclamens should be grown.

Oncidium dasystyle (*W. Reading*).—This Orchid is a dwarf-growing species from the Organ mountains, Brazil, and flowers in January and February. It requires to be grown in a cool house, and can be had either in shallow pots or pans suspended from the roof, where it has a pleasing appearance, the lip being somewhat suggestive of a fly or other insect.

Names of Chrysanthemums (*Reader*).—If you read the notes again carefully you will find that all the names are given, but we will repeat them. The top flower is Catherine-wheel, that at the right hand side is Crushed Strawberry, that on the left is Lady Churchill, and the other at the bottom of the figure is Lady Dilke.

Pruning Flowering Currants (*Cambridge*).—The best time to prune these pretty shrubs is during winter after the leaves have fallen and up to February. This allows of fresh shoots being made in good time, insures their ripening, and consequently flowering another season. If the bushes only need a little trimming to bring them into shape, then they may be cut in directly after flowering, and judiciously performed will not interfere much with the next season's bloom. We believe there is some such ruler or line-divider as you mention, and particulars could possibly be obtained from Messrs. Isbister & Co., Stationers, &c., Ludgate Hill.

Starting Vines to Ripen Grapes Early in August (*A. B.*).—To ripen Grapes at the time you name the Vines need only be started at the middle of February or even early in March, which will save much firing, as the later the starting the more the sun heat obtained, and Black Hamburgs do not require nearly so much time as the thick-skinned varieties of Grapes. A temperature of 50° at night is suitable, day temperature 55°, advancing to 65° from sun heat. If you read "Work for the Week" you will find instructions from time to time that will be useful in the management of the Vines.

Planting Roscs (*Idem*).—The Roses that are now in the greenhouse would be better removed to a cooler place, even laid-in outside, and in case the weather continues severe cover them with straw or a good thickness of mats. This will keep them from growing, as they are likely to do if in the greenhouse. Planting should not be longer delayed than the middle of February, but we have planted them as late as March and even April in unusually late seasons.

The Culture of Lemon Trees (*R. C.*).—In reply to your request information, Mr. Pettigrew sends the following: "The Lemon trees here are



growing in a division of a late vinery 30 feet long. They receive the very same atmospheric treatment as the Vines at all seasons. The trees are planted at the distance of 10 feet apart, and three trees completely cover the wall. I believe the variety is the common Lemon, *Citrus Limonium*. With respect to the cultivation of the Lemon, I feel certain that it would grow and fruit equally well in an early vinery, Peach-house, or greenhouse, if properly attended to, and supplied with plenty of water both when resting and growing, and the plant kept free from scale and other insect pests."

**Petroleum for Carrots**—*Aucubas* (A. D.).—A small wineglassful of petroleum well stirred in a gallon of soapy water has been applied to both Onions and Carrots without injuring the plants, but has rather encouraged their growth; it has not, however, proved uniformly successful in preserving the crops from maggots and wireworms, though some cultivators have found it beneficial in that respect. It might do good to give the ground a good watering before sowing. If given to the plants it should be applied to the soil alone in the evening, not sprinkled on the leaves in the morning, or the sun acting on them would prove injurious. Numbers of female *Aucubas* have green leaves, which, as a rule, are narrower than those of male plants, some being very narrow, and these plants are often the most floriferous.

**Difficulties and Poesy** (L. R.).—We regret to hear of your domestic difficulties, and applaud your endeavours to surmount them. By perseverance and industry we trust you will succeed in your object. You will find that course far more effectual than employing your time in literary exercises of the nature you have submitted. It is not quite suitable for our columns, and we should not be advising you well if we encouraged you to send it to any of the London general papers. You can, if you like, send it to a local editor, though we know pretty well what his decision will be. When men of experience and education fail in making this kind of work profitable you cannot hope to succeed. Let it alone, and persevere in your work in establishing a business in which you may make a comfortable livelihood.

**Pyracantha not Fruiting** (A. M.).—No doubt a want of sun first to ripen the wood in autumn, then to dry the pollen in spring, is the chief cause of your plant not fruiting. The only thing you can do is to remove any luxuriant growths that shade and overcrowd others of a shorter-jointed and sturdier character early in August, so that these may be as fully exposed as possible to light and air. Then when the flowers are expanded and quite dry shake the sprays a few times—or, rather, once a day for a few days—to assist the dispersion of the pollen, and fruit may possibly follow. By all means train the branches round to the sunny side of the building, and if not overcrowded they will be almost certain to produce flowers that will be followed by clusters of fruit.

**Pancratium Roots Dying** (W. J. C.).—It is not possible for us to inform you what has caused the decay of the roots, as we are quite unaware of the treatment the plants have received, or the conditions under which they have been grown. A check, such as from cold, an excess of water or liquid manure might cause it, or the bulbs may have been attacked by some insect. This can only be determined by examination; but whatever the cause of the injury we should shake the bulbs out, wash them, place in fresh rough compost containing a liberal admixture of charcoal, place in rather small well-drained pots, plunge them in bottom heat, and treat generally as we previously advised for *Eucharises*.

**Tanks for Rain Water** (W. M.).—You are acting wisely in making provision for the storage of all the rain water you can under the circumstances. We are very similarly situated, and have constructed tanks which afford us an unailing supply. They are lined with cement, and the water is conducted to them through glazed earthenware pipes. Though it may be a little hard at first, when the tanks are new, this soon passes off and the water is as soft as can be desired. The price you name is, we consider, fair. A cubic foot contains a trifle over 6 gallons. You have no occasion to apologise. We do not feel "bothered" at all when we can impart information, but we cannot account for the water in your tanks turning hard. All we can do to aid you is naming the conditions under which that in our tanks remains soft.

**Repotting Hoya** (H. T.).—If you have not a warmer house into which you can stand the plant after potting, we should wait a month or six weeks before disturbing it, or until your house is naturally warmer in consequence of the increased external temperature. It should not be less than 50° at night, with an increase of 30° in the day by sun heat, for starting the plant into growth. The pot, we should imagine, will be abundantly large enough, perhaps larger than is needful; but all depends on the roots. We should not be surprised that when you examine the roots you will find some of them dead; if so, these must be removed and all inert or sour soil removed also. The pot should have a depth of at least 3 inches of drainage, this to be covered with a layer of fibre from which all soil particles have been beaten or shaken. A suitable compost will be two parts of turfy loam, one part of turfy peat, and a tenth part consisting of crushed brick, lime rubbish and charcoal, all to be well mixed. This should be well worked, amongst the roots, dividing them as much as possible—that is, not pressing them together in a mass; then make the soil moderately firm, but not hard, and give a good watering with tepid water. Afterwards be careful not to saturate the soil by over-watering, but rather keep the plant fresh by syringing it once or twice a day, according to the weather, and especially early in the afternoon when the house can be closed with a good sun heat. If the roots are much disturbed in the process of potting afford shade from bright sun by a screen of paper or other light material affixed over the plant. With judicious attention in watering and syringing it is almost certain to recover, and the leaves change from a sickly yellow to a deep green hue, and when this occurs more water will be needed at the roots and full exposure of the foliage to the sun.

**Potting Ferns** (*Idem*).—If you add a handful of leaf soil to the above compost it will be suitable for both the *Davallia* and *Platynerium*. The latter is often grown on blocks similar to Orchids, the plants being affixed in a cavity containing some rough soil. We have, however, seen very fine specimens grown in pots. Half fill the pots with drainage and affix the plants on a mound slightly above the rim. The *Davallia* should be potted rather high also, so that the rhizomes may spread over the rim. Thus potted abundance of water can be given when the plants are growing

freely with little danger of rendering the compost sour—a point of considerable importance in the cultivation of these Ferns.

**Names of Fruits**.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. —(J. C.).—1, Bess Pool; 2, Baxter's Pearmain; 3, Ord's; 5, Reinette de Caux; 7, Blenheim Pippin; 8, Scarlet Nonpareil.

**Names of Plants**.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (W., Reading).—The flower was not in good condition, but we believe it is *Oncidium dasystyle*. See reply above.

## COVENT GARDEN MARKET.—JANUARY 27TH.

BUSINESS somewhat quieter. Best samples of Grapes improved. All other goods unaltered.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. ½ sieve	1 0	to 3 6	Oranges .. .. 100	4 0	to 6 0
" Canadian .. barrel	10 0	12 6	Peaches .. .. per doz.	0 0	0 0
" Nova Scotia ..	10 0	12 6	Pears, kitchen .. dozen	1 0	1
Cobs, Kent .. per 100 lbs.	27 6	30 0	" dessert .. dozen	0 0	0
Figs .. .. dozen	0 0	0 0	Pine Apples English .. lb.	1 0	1 6
Grapes .. .. lb.	1 6	4 6	Plums .. .. ½ sieve	0 0	0 0
Lemons .. .. case	8 0	10 0	St. Michael Pines .. each	2 0	6 0
Melon .. .. each	0 0	0 0			

### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. .. dozen	1 0	to 0 0	Lettuce .. .. dozen	1 0	to 1 6
Asparagus .. .. bundle	2 0	6 0	Mushrooms .. .. punnet	0 6	1 0
Beans, Kidney .. lb.	0 6	1 0	Mustard and Cress .. punnet	0 0	0 0
Beet, Red .. .. dozen	1 0	2 0	Onions .. .. bunch	0 3	0 0
Broccoli .. .. bundle	0 9	1 0	Parsley .. dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	2 6	3 0	Parsnips .. .. dozen	1 0	2 0
Cabbage .. .. dozen	0 0	0 0	Potatoes .. .. cwt.	4 0	5 0
Capiscums .. .. 100	1 6	2 0	" Kidney .. cwt.	4 0	5 0
Carrots .. .. bunch	0 3	0 4	Rhubarb .. .. bundle	0 2	0 4
Cauliflowers .. .. dozen	2 0	3 0	Salsafy .. .. bundle	1 0	0 0
Celery .. .. bundle	1 6	2 0	Scorzoneria .. .. bundle	1 6	0 0
Coleworts .. doz. bunches	2 0	4 0	Seakale .. .. per basket	1 6	2 0
Cucumbers .. .. each	0 9	1 6	Sballots .. .. lb.	0 3	0 6
Endive .. .. dozen	1 0	2 0	Spinach .. .. bushel	2 0	4 0
Herbs .. .. bunch	0 2	0 0	Tomatoes .. .. lb.	0 6	1 0
Leeks .. .. bunch	0 3	0 4	Turnips .. .. bunch	0 4	0 0

### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi .. dozen	9 0	to 18 0	Ficus elastica .. each	1 6	to 7 0
Arbor vitæ (golden) .. dozen	6 0	18 0	Ferns, in variety .. dozen	4 0	to 18 0
" (common) .. dozen	6 0	12 0	Foliage Plants, var. .. each	2 0	10 0
Arum Lilies .. .. dozen	12 0	18 0	Genistas .. .. dozen	10 0	12 0
Azaleas .. .. dozen	24 0	42 0	Hyacinths .. .. dozen	6 0	9 0
Begonias .. .. dozen	6 0	12 0	Marguerite Daisy .. dozen	8 0	12 0
Bouvardia .. .. dozen	12 0	18 0	Myrtles .. .. dozen	6 0	12 0
Cineraria .. .. dozen	10 0	12 0	Palms, in var. .. each	2 6	21 0
Cyclamen .. .. dozen	12 0	24 0	Pelargoniums, scarlet, doz.	6 0	9 0
Cyperus .. .. dozen	4 0	12 0	Poinsettia .. .. dozen	12 0	18 0
Dracena terminalis, dozen	30 0	60 0	Primulas, single, .. dozen	4 0	6 0
" viridis .. dozen	12 0	24 0	Solanum .. .. dozen	8 0	12 0
Erica, various .. dozen	12 0	24 0	Spiraea .. .. dozen	18 0	24 0
Euonymus, in var. .. dozen	6 0	18 0	Tulips .. .. 12 pots	6 0	9 0
Evergreens, in var. .. dozen	6 0	24 0			

### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. 12 bunches	2 0	to 4 0	Lilium longiflorum, 12 blms.	9 0	to 12 0
Acacia (Mimosa), Fr., per bunch	1 0	1 6	Marguerites .. 12 bunches	6 0	8 0
Arum Lilies .. 12 blooms	5 0	8 0	Mignonette .. 12 bunches	3 0	6 0
Azalea .. .. 12 sprays	1 0	1 6	Pelargoniums, per 12 trusses	1 0	1 6
Bouvardias .. per bunch	0 6	1 0	" scarlet, 12 trusses	0 9	1 0
Camellias .. 12 blooms	3 0	6 0	Poinsettia .. 12 b'ooms	4 0	8 0
Carnations .. 12 blooms	1 0	3 0	Roses (indoor), per dozen	3 0	9 0
Obrysanthemums 12 bunches	2 0	4 0	" Tea, French .. dozen	1 0	2 0
" 12 bunches	9 0	18 0	" red, French .. dozen	2 0	4 0
Cyclamen .. doz. blooms	0 4	0 9	Spiraea .. .. 12 sprays	1 0	0 0
Epiphyllum .. doz. blooms	0 6	0 9	Tropeolum .. 12 bunches	2 0	3 0
Eucharis .. per dozen	4 0	6 0	Tuberose .. 12 blooms	1 6	3 0
Gardenias .. 12 blooms	6 0	18 0	Tulips .. .. dozen blooms	0 9	1 0
Hellebore .. doz. blooms	0 6	1 0	Violets .. .. 12 bunches	1 0	1 6
Hyacinths, Roman, 12 sprays	1 0	1 6	" Czar, Fr., .. bunch	1 6	2 0
Lapageria, white, 12 blooms	0 0	0 0	" Parme, French, per bunch	4 0	6 0
Lapageria, red .. 12 blooms	1 0	2 0			



### THE FLOCK.

HAVING regard to the importance of early maturity in sheep, we may usefully consider now, before lambing becomes general, what may be done not only to bring lambs upon the



market as speedily as possible, but to bring them there in the highest condition consistent with economy. In doing this we may inquire what has been our purpose in sheep-breeding, or, if we have had any special end in view other than that, of obtaining as many lambs as we could. Looking through an ordinary flock of sheep we generally find many inferior animals, and if we talk to the shepherd he will point out others with some blemish or fault that should have led long ago to their expulsion from the breeding flock. It is only by careful selection and equally careful breeding that we can gradually form a really good flock. The history of any famous flock shows this clearly, and it ought certainly to be our ambition to effect some annual improvement among our sheep. It is plainly our interest to do so, and in order to do this well we must be much among the sheep, especially on the approach of and during lambing.

Debility should never be passed over lightly, especially when there is evidence of it in parturition. A ewe that is long in labour, suffers severely from straining, or cannot bring forth its lamb without assistance, ought not to be let breed again. The birth of a dead lamb is not altogether to be taken as an indication of debility on the part of the dam, the loss of the lamb being attributable to fright, or to some injury arising from over-driving or jumping. We have now several fine young ewes kept apart from the flock simply because of their propensity to jump over every fence, an ordinary hurdle being a trifle to them, and the shepherd assures us they can easily clear a five-barred gate. To attempt such leaps when heavy in lamb often leads to some catastrophe, and the tendency to jump over enclosures should be checked as much as possible in its infancy. This is best done by keeping "jumpers" in some high enclosure till the habit is forgotten; or rather to place would-be jumpers there before the habit is acquired and becomes fixed. Debility often proceeds from a severe cold; we have lost both ewe and lamb from such a cause. Surely the fact of severe coughs and colds being so common among animals having such a warm natural clothing as sheep points to an undue amount of exposure and a want of adequate shelter. If an entire flock became affected shelter would then be provided, yet why should some of the sheep suffer for want of due care on our part? Or to put it in a more practical manner, why should the farmer run the risk of losses among his sheep from any cause which it is in his power to avoid? It by no means follows, however, that weakly or half-starved sheep fail in lambing. The half-wild sheep on Ashdown Forest in mid-Sussex afford a remarkable example of this. In winter these sheep are in sorry plight, being kept in a state of semi-starvation; yet there are plenty of lambs every spring, and though small they are active and healthy.

Some ewes will not suckle their young ones, either pushing them away or knocking them down whenever they approach the udder. With care this propensity may frequently be cured; when it cannot be cured the ewe is condemned, and marked for draughting for the butcher. So, too, are all others with any serious defect, and it is by this careful weeding of the flock every year, and by additions of well-chosen young ewes, that much good work is done. The assertion that the progeny of ewe lambs come to maturity sooner than that of older sheep must be received with some caution, for we do not put our ewe lambs to the tups till a month or more after the older sheep, and an early February lamb, if well cared for, ought to be ready for market sooner than one born a month later. No doubt breed tells in this matter, but then care and pains in management tell also. Well-fed ewes give strong lambs, and highly fed lambs, suckled by a vigorous well-nurtured ewe, thrive apace. There must constantly be a full generous diet for the ewes, and a progressive well-considered one for the lambs. Let there be no sudden change from poor to rich food. As the ewes lamb they are gradually brought with the lambs on to sound and, if possible, an upland pasture. Lambs soon begin eating gra and with growth and age even before the weaning, they ta

dry food, such as bran, crushed Oats, and crushed Waterloo cake. When they consume dry food freely and with evident relish they make rapid progress, the most forward soon passing into the grade of fat lambs, and are early in the markets. Those intended for store sheep are not generally so well fed; yet it is wrong to allow them to fall into poor condition. Ewe lambs well fed grow fast, and are ready for the tup in October, our generous treatment being well rewarded by an early crop of lambs. Wether lambs are also fed so well that by the time they enter the Turnip folds in winter as hoggets they have large and by no means badly nurtured bodies; they then make rapid progress upon Turnips and trough-feeding in folds. We recently went to inspect some of our hoggets in such folds and found them progressing satisfactorily, for they were to remain on the land till March, passing on from fold to fold, and the ploughs were in full swing turning over the land closely after them, in readiness for the Barley sowing.

#### WORK ON THE HOME FARM.

Much draining has been done, both with 2-inch pipes and bushes, and we have made arrangements for doing a few more fields. We came to this decision while walking over the land some twelve hours after a heavy downpour of rain, and found the soil so thoroughly saturated that we sank over our boots in the soft soil. Now this is what is termed "good mixed soil," having so many small stones among it that superfluous surface water must pass quickly through it to the subsoil; but a clay subsoil must be opened by drains, or the water enters it so slowly that the soil becomes water-logged. We found the new bush drains answering well, a full strong flow of water running freely from every one of them. Bush drains are efficient for six or eight years, when they must be renewed. In a field where this is being done, the old drains were made diagonally, and by making the new rectangular drains across them we tap the old drains, and thus add to the efficiency of the new ones. We commend bush-draining to the attention of our readers both for its economy and efficiency; the drains are 30 yards apart, and about 30 inches deep, and they answer perfectly to relieve all land quickly of surface water, but they are not intended to supersede deep tile drains, which, at a depth of 4 feet, have an important double action in draining the surface water, and in checking the rising of water to the surface by capillary attraction. In draining chalybeate springs pipes should never be used, for they invariably become choked by an ochreous deposit, which, though it adheres to the bushes, does not prevent the passage of water among them. This is another of the many instances which occur in practice to show that we cannot always go by line and rule, but must adapt ourselves to circumstances as they arise. Though a simple process, draining is by no means to be done without due thought, and we may add without ample evidence of its necessity. Light sandy soil upon an open subsoil is drained naturally—over-drained, it may be said to be, for crops suffer severely in it during drought. All soil containing many small stones or much hard gritty matter affords a free passage to surface water, and we have to see that the subsoil has also sufficient mechanical division to allow water to pass away quickly through it; if not, we must open it with drains at such depths as appear best for each particular piece of land. Look closely into the condition of old drains. If ditches are not cleaned out regularly an accumulation of leaves and rubbish gradually gathers over the mouths of the drain, which thus become choked and useless. There should be a grating over the mouth of all pipe drains larger than 2 inches to keep out rabbits and other vermin.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain
1896.  January.		Baromet- er at 39 <sup>a</sup> and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sunday .....	17	29.504	34.1	33.4	S.W.	36.8	42.1	32.5	56.8	27.0	0.280	
Monday .....	18	29.033	34.7	34.4	N.W.	36.8	42.2	33.2	60.6	28.5	—	
Tuesday .....	19	29.330	26.8	26.3	N.	36.2	35.2	24.9	45.6	20.4	0.010	
Wednesday ..	20	29.532	28.9	28.4	E.	35.7	34.6	26.1	51.5	21.8	0.086	
Thursday .....	21	29.341	33.7	33.4	N.	35.3	35.2	26.9	40.3	23.2	0.038	
Friday .....	22	29.556	30.8	29.3	N.E.	35.2	34.8	29.0	60.2	26.4	0.084	
Saturday ....	23	29.445	33.9	33.6	N.W.	35.2	36.7	3.4	46.9	28.3	0.117	
		29.392	31.8	31.3		35.0	37.3	28.9	51.7	25.1	0.615	

#### REMARKS.

17th.—Fine pleasant day; dull evening.  
18th.—Fair morning, fine bright afternoon, clear cold night.  
19th.—Fine morning, freezing hard, but foggy; snow at noon.  
20th.—Foggy all day, then fine and bright.  
21st.—Snow from early morning till 10 A.M., and at intervals till noon; dull cloudy afternoon.  
22nd.—Overcast morning; fine afternoon, with a little sunshine.  
23rd.—Snow early, and sprinkling with slight rain all day.  
A cold snowy week, with constant low barometer.—G. J. SYMONS.





## COMING EVENTS

4	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
5	F	
6	S	
7	SUN	5TH SUNDAY AFTER EPIPHANY.
8	M	Royal Geographical Society at 8.30 P.M.
10	TU	Royal Horticultural Society—Fruit and Floral Committees at 11 A.M.
	W	[Annual Meeting at 3 P.M. Annual Dinner at 6.30 P.M.]

## MUSCAT OF ALEXANDRIA GRAPE.

SO much has been written about this Grape that it may be thought that nothing new can be advanced regarding it. Such may be the case, but I would venture to say that the Journal is always having added to its numerous readers young men just beginning life as gardeners who have not read all that has gone before on Vines and other horticultural subjects. There are also always new readers being added amongst the amateurs, and some of them may perhaps find the following notes of use; at any rate I offer them with that hope.

First of all it may safely be said that Muscat of Alexandria is a grand Grape which should be grown by all who wish for high-class fruit. It is well worth the additional trouble sometimes required to have it in perfection, and those who are successful in its culture are always found extolling it in every way.

Mr. Thomson of Drumlanrig, in the Journal for January 21st, gave some interesting notes on the Muscat and his experience with it in some past seasons. For some years Muscats proved far from satisfactory at Drumlanrig, where all other varieties were to be seen in first-rate condition. Mr. Thomson attributes the unsatisfactory condition of the Muscats to the want of sufficient drainage in the border, and I am inclined to think he is right. The measures he took to cure the evil of a too deep and insufficiently drained border he describes, and also the yearly improvement that has taken place in his Muscats since the border was made more shallow and more perfectly drained. The experience I have had with Muscats entirely coincides with Mr. Thomson's. Shallow well-drained borders, where abundant water could be given—where, indeed, the surplus water from each watering could at once be seen running out of the borders, they being quite above the level of the surrounding ground—seem to suit the Muscat exactly, provided always abundance of water be given when that is required, whether from the borders being inside or in dry weather if outside.

Nothing is more calculated to prove disastrous to the welfare of Muscats than too deep and ill-drained borders. Much time, labour, and expense have been laid out on Vine borders sometimes, which is very ill requited, in regard to Muscats at least, for the simple reasons that the borders are made without enough drainage and also too deep. Give me a shallow border above the level of the ground, an abundant supply of water, plenty of good soil and manures to top-dress with every spring, and, other things being favourable, Muscats will thrive and fruit as freely as can be desired.

Regarding the varieties of Muscats much uncertainty prevails, and men of great skill and experience take entirely different views on the matter. Bowood Muscat has never been seen by the writer so distinct as to warrant its being cultivated under a different name. Indeed the difference was more imaginary than anything else, as, knowing that what was called Bowood was being looked at, some slight difference was thought to be observed, and that is all. Grown side by

side with other Muscats, I have not noticed it any earlier than other varieties. There can, however, be no mistake in saying that Canon Hall Muscat is a distinct variety, and when successfully grown it is a splendid Grape in appearance and in quality. It is, however, extremely fickle, and too often rewards its cultivator with a long straggling bunch with a few scattered, properly set and swelled berries, and this after careful attention and artificial fertilisation.

In order to attain success in the culture of Muscat of Alexandria, in addition to shallow well-drained borders and plenty of surface feeding, I would advise that the rods be kept so far apart that all the laterals may be tied out at right angles to the main stems, so that the foliage may receive every chance of catching as much sun as possible, and that the wood may be thoroughly ripened, which does not happen sometimes, when shoots are too thickly laid in and the leaves unduly crowded.

Never be tempted to crop Muscats too heavily. The difference between Muscats which have been cropped so that they could finish their fruit well, and others which have been overburdened, is so great that nothing should induce anyone to overcrop. In the one case well-ripened, well-swelled, and perfectly finished Grapes can be had; Grapes which will keep a long time and be a pleasure to eat. In the other case want of colour and finish, early signs of shrivelling, and a great want of flavour and sweetness result. Some cultivators advocate leaving the bunches so free from leafy covering that they will get the direct rays of the sun, but I have found that this causes scalding at the stoning period, and also turns some of the berries into raisins later on. If the Vines are in good order and not too heavily cropped, the bunches will colour quite golden beneath a moderate amount of foliage, and then scalding and roasting into raisins can be avoided.

As a general rule it is advisable to use artificial fertilisation to secure a good set with Muscats. When the bunches are in bloom they should be brushed over very lightly with a feather or foxtail, choosing midday for the operation, at the same time endeavouring to maintain a temperature as near 90° as possible, with a circulation of air when such can be safely obtained. On some cold days in spring, when the sun is powerful, raising the heat in the houses considerably, and when at the same time an east wind is blowing that chills everything it comes in contact with, it is extremely difficult to ventilate houses where Muscats are in bloom, so that a circulation can be maintained without a chilling effect. This is one of the many difficulties a gardener has to contend with. In dull cold weather pipe heat must be resorted to, to maintain a temperature as near 80° as possible, and assiduous attention must be paid to the precious Muscats in the way of applying the feather or foxtail so that every bunch may be caught at the time when its pollen is ripe and ready. Nothing is more disappointing than a bad set of Muscats, as the labours of a season must then go in a great measure unrewarded.

In comparatively sunless summers it is often very necessary that much fire heat be used in conjunction with a judicious ventilation, in order that Muscats may be sufficiently ripened to enable them to keep well. When such is the case red spider too often appears. When first observed I advise an immediate attack with clean water and the syringe. Taken in time the red spider may be checked, but allowed to get a hold it is certain to make its mark before being overcome. Sulphur is thought by some to be effectual in checking red spider, but sometimes it is very doubtful whether the maintenance of a dry, or at least a comparatively dry, atmosphere at a time when plenty of moisture is beneficial, is not more calculated to enable the pest to thrive, in spite of sulphur, than if extra moisture and syringing were resorted to.

Mildew, generally the result of a too stagnant and damp atmosphere, is another trouble that sometimes affects Muscats seriously; but in most cases it might easily have been avoided if due attention had been paid to atmospheric con-



ditions. Sulphur dusted on the leaves and painted on the pipes is sometimes resorted to in order to check the ravages of mildew; but I would say in this case as in others prevention is better than cure. Shankling may be caused by overcropping, sour borders, or sudden checks, and it should be the endeavour of all cultivators to avoid all these evils.

The question of the temperature necessary for the proper culture and ripening of Muscats has been in past years the subject of much controversy, some writers maintaining that they can be properly ripened under a cool system, and others—and I think the majority—maintaining that an extra amount of heat is required to properly finish all Grapes belonging to the Muscat family. The experience I have gained makes me decidedly of the opinion that heat in an extra quantity is required for the ripening of Muscats. This has sometimes prevented people undertaking their culture, but I can assure them that the extra heat and care required will be well repaid, for a quantity of Golden Muscats is the result. Taking it with all its peculiarities and extra requirements, this Muscat is a king among Grapes; it always commands due homage when displayed in regal splendour, and the many votaries of Horticulture who attend the numerous exhibitions throughout the country are ever ready and willing to express admiration when this Grape is exhibited in prime condition. We know that some hesitate to attempt its culture through fear of not being able to provide some of its requirements, and to aid these the foregoing notes have been penned.

For packing and standing a railway journey the Muscat is first-rate, as it also is for the dessert table. Its keeping qualities are of the best, and altogether it combines such excellent and valuable qualities that no one should rest contented who cultivates Grapes and has not successfully grown the noble Muscat of Alexandria.—Hortus.

#### THE PLEASURE AND PROFIT OF AN AMATEUR IN VEGETABLE GROWING.

THE heading was written easily enough, but now how to go on I scarcely know. I feel that much may be written, but not having the fluent pen of "D., Deal," I fear that I cannot do justice to my subject.

Some ten years ago when, living in the country and fresh from London, with a small garden attached to my house, I felt that it would be healthy amusement to do my own gardening. This was the commencement of my interest in horticulture, and my first Potato planting followed. I was soon anxious to see the product of my labour—too anxious indeed, for I began lifting when the tubers were but the size of marbles. I was thus taught that patience was required, but my heart was in my work, and I soon managed to have a constant supply of fine vegetables in my garden, obtaining thereby credit from my friends and satisfaction to myself. Of course this increased my desire to do better, and the taste grew on me, as it always will on others, so that I began to think of exhibiting. My first attempt was a failure, but I now manage to take my fair share of prizes in the vegetable and fruit classes at the local shows. Year by year I try to produce something better than the year previous. As in my case so is it in others. You begin to take a slight interest and dabble in the garden, and it soon grows into a never-ending pleasure to you. Raising seedling Potatoes, new Melons, or Cucumbers never fails to give satisfaction to the man who loves his garden.

Turning to the Brassicas, I believe that there is an open field for amateurs with plenty of time, patience, and perseverance into which many may tread. Peas, Potatoes, and Beans are so good now that we cannot hope for much better; but if Mr. Gilbert can produce not only an entirely new vegetable in the famous Chou, but improvements on existing varieties, such as Victoria Broccoli, Chou de Gilbert, and Universal Savoy, is it not possible that some other vegetables may be produced by careful and persistent experiments? For instance, a Sprout bearing miniature Cauliflowers all up the stalk in the place of miniature Cabbages, as in the Brussels Sprout. Surely it is possible. I find that fine Cauliflowers, of which I may feel proud, do not find acceptance in the kitchen, but hints are thrown out that smaller produce is better for the table, so why cannot we try to produce them small, but in great abundance, on one stalk? I believe there are no bounds to Nature's possibilities when

assisted by man's care and patience. How I envy floriculturists What a boundless field they have.

After all this rigmarole you will naturally ask, What is the profit? I added above "of an amateur." As a profitable undertaking in a monetary sense I will not venture to give an opinion in these bad days. The profit I allude to is the employment of your mind in a groove far removed from your everyday business cares and domestic anxieties, combined with physical labour of the healthiest kind, which will go far to give you an enjoyment of your meals, and an elastic feeling of superabundant energy. What other pleasure, what other hobby, what other occupation will pleasurably employ your mind and healthily exercise your body? None, save horticulture. How you can enjoy sowing the seed, watching the crop gradually growing to maturity, and when ready for use do not your own vegetables, which you have yourself tended, taste far better for the interest you have taken in their production?

I do love my garden, and I heartily thank our Editor and our Journal's contributors for fostering the love of horticulture in the hearts of so many of their readers.—H. S. EASTY.

#### CARNATION MISS JOLLIFFE.

THIS is now a comparatively old variety, and is so well known that to praise it would be superfluous. I shall therefore endeavour to point out some qualities which may have escaped the notice of some of its admirers. It is so well known as the best variety for supplying flowers during the darkest days of winter, that its value as a flowering plant at other seasons may well be overlooked, especially when the ordinary method of propagating young stock every spring with the concurrent dismissal of the old plants to the rubbish ground forms the general method of culture. If those who have healthy plants of this Carnation flowering, say in 6-inch pots, will take care of them, placing them into 8-inch pots in April, the blooms these will provide in early summer will be most valuable. They do moderately well in the same 6-inch pots, but as compared with the shifted plants these are much inferior. And the same plants will continue flowering more or less all through the year. Indeed, the most floriferous plants in midwinter we have seen have been some of these plants so treated. I like to grow them in good loam and cowdung, and when they reach the period for extra food to be supplied it is regularly given them.

Reverting to these as summer-flowering plants, it may be added that they are excellently fitted for arranging amongst Pelargoniums and other greenhouse plants, while for furnishing vases of cut flowers few can excel them. A good branch ought to produce four good blooms at the point of the shoot and several smaller blooms down the stem. These cut the full length of the stem make quite a feature in an arrangement of cut flowers.

The best time to propagate this and other Carnations is not in spring in heat, but in summer. Sturdy side shoots taken off in July, inserted in the open garden and covered with handglasses, strike very freely. An efficient method of shading these handglasses is to dip each one into water, then sprinkle fine sand over its inner surface before it has had time to become dry. This shading will last good in all kinds of weather until it is removed. When the cuttings are rooted the handglasses are removed and the plants left to grow until September, when they are placed into 3-inch pots and left out of doors until the middle of October, when a cold frame is the best place for them, in which they remain until spring, of course plenty of air being admitted in favourable weather. All varieties of tree Carnations are best propagated as above. The variety Souvenir de la Malmaison strikes with certainty, and strong plants are secured to begin with the spring, as those which escaped pinching in the autumn are ready at this season, many of them bristling with growths close to the base ready to advance with the return of genial weather.—B.

#### THE BEST MELONS.

NEARLY every grower has his special favourites, but it does not follow that these are best for all persons, one reason for this among several being the important fact that so much depends upon the conveniences of the cultivator, as well as the taste of those for whom the fruit are grown. At the same time, a few remarks on the various sorts that have come under my notice may be of service to intending cultivators who may yet be undecided as to which to select. The Committee of the Royal Horticultural Society undoubtedly adjudicate impartially upon the many seedlings submitted to them, but after all it is by no means certain that the certificates are awarded to sorts that are likely to become popular. The raisers fully understand the



habit of growth and other characteristics of the sorts they submit for certificates; not so the Committee, who, if the fruit happens to be distinct in appearance and good in quality, honour it with a certificate. When the seed is distributed each packet may contain several forms, and the cultivator is disappointed accordingly. The fruit, not the variety, awarded the certificate may have been the result of an accidental cross owing to the close proximity of other sorts, and as a consequence the official recommendation may after all prove misleading. Those who save seed for distribution especially ought to most carefully guard against this. No other variety ought to be in the same house, then we should hear fewer complaints of certain varieties not being at all equal to the glowing descriptions. As it is, plenty of gardeners have discontinued purchasing Melon seeds, preferring rather to procure them from friends who can supply them true to name. Further, those who, like myself, have been fortunate enough to obtain good stocks of certain reliable sorts, carefully preserve and continue to annually sow a few seeds from the same packet. We do not rely, however, upon old seeds, new seeds being the most likely to give the strongest plants.

Longleat Perfection, a new variety obtained by Mr. Pratt at Longleat from a cross between Eastnor Castle and Hybrid Cashmere, is undoubtedly distinct and first-class in quality. As only this novelty and its two parents are cultivated at Longleat, there is not much danger of the stock becoming deteriorated, and I have not the slightest doubt it will figure prominently on prize lists throughout the country. I should say it will not succeed well in frames, neither must it be closely stopped in houses where canker is apt to be prevalent. No comparatively new variety equals Hero of Lockinge for all purposes, this well-known sort being alike suitable for frame and house culture, while the fruits are handsome enough for collections of fruit, and good enough to win prizes in the classes provided for Melons. It keeps and travels well, and provided the plants carry a good crop the fruits are of the right size to please the fruiterers. The latter, with whom too many gardeners now have business, do not thank them for sending large Melons, those ranging from 2 lbs. to 3 lbs. usually selling the most readily.

Eastnor Castle, when it can be obtained true, is a free-bearing sort, the fruit being large, handsome, and of the best quality. As a rule, spurious forms only can be obtained, and the fruits of these are usually large and ugly. Webb's Woodfield also possesses some of the characteristics of Victory of Bath, from which it was doubtless obtained, but with us the fruits were somewhat rough in appearance—were much too large, in fact. It has been a favourite variety with exhibitors in the west of England, and several first prizes were awarded to it. I intend to grow it again. Golden Perfection is one of the prettiest Melons in cultivation, particularly good for collections, and sometimes being also of good quality. William Tillery appears to be losing ground, but I do not think it would have done so if it had been kept true. Burghley Pet is the favourite sort with a gentleman near here. It is a heavy cropper, and the fruits small in size, are handsome, heavy, and good in quality. This is well worthy of a trial either for marketing or where small fruits in plenty are required. The old Golden Queen, if it can be procured true to name, is one of the best for frame culture, and a capital sort for the market.

Among scarlet-fleshed varieties Blenheim Orange is still pre-eminent, and I should say it would be impossible to raise one more serviceable. I am constantly recommending it as the best companion for Hero of Lockinge, whether for pot, house, and frame culture. It is one of the first to ripen, and after it has been kept for three or four days in the fruit room it is greatly improved in quality, winning prizes innumerable. The largest and most handsome fruits of this I have yet seen were in a gentleman's garden at Frome. It has largely superseded Read's Scarlet Flesh, although the latter is by no means to be despised, and is still grown by a few. Scarlet Premier rather disappointed me, the quality not giving satisfaction. It is free-bearing and handsome, but on the whole not so good as Lunefield Hybrid, a variety somewhat resembling Premier, raised by Mr. E. Burton, the gardener at Lunefield, Kirkby Lonsdale. We found this novelty all that the raiser informed me it would be—viz., free-bearing, of good weight, or from 4 lbs. to 6 lbs., thin-skinned, and fine-flavoured, it was the most profitable of all the Melons fruited in pots early last season. Sutton's Masterpiece is also a first class scarlet-flesh, and good for all purposes. As a rule green-fleshed varieties are preferred by judges at horticultural shows to the scarlet-fleshed, but I am inclined to think prejudice has something to do with it, as I have tasted the last-named and Blenheim Orange equal to any green-fleshed variety in general cultivation.

Our friend, Mr. G. Abbey, has been successful in raising

several very excellent sorts, but does not appear to have made capital out of them, yet I feel certain if he selected his best and distributed them they would become great favourites, as they are no chance crosses, but were the result of much pains to secure varieties possessing good constitution and free-bearing habits, high quality being also duly considered. Very few gardeners are so well versed in Melon lore, and his experience related in the *Journal of Horticulture* would be instructive.—W. IGGULDEN.

## CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 68.)

### SPECIAL TREATMENT FOR WEAK VARIETIES.

SOME varieties of Chrysanthemums are much weaker in constitution than others, consequently they require rather more care to develop their qualities than those of a more robust habit. Some of them are handsome in form, and their general good quality renders them indispensable in a first-rate collection. By a judicious course of treatment the difficulty attending the successful culture of weak varieties can be overcome. For the guidance of those persons who do not know the varieties referred to as weak growers, I have compiled a list of them, and detail the method of managing the plants, which I commend to the special attention of the inexperienced. The list comprises only those which are meritorious and worth growing.

As previously stated, propagation should commence with these as early as possible, so as to give them a long season of growth and to avoid undue excitement, such as forcing them in heat to make up for the time that is lost by striking the cuttings late. At the first potting from the cutting stage place the plants in 3½-inch pots, adding half a part more of leaf soil to the compost previously advised. Treat the plants in the same way as the general stock as regards position and watering. When they are ready for the next shift, which should be into 5-inch pots, the soil should be the same as before. From these they can be transferred into their flowering pots, which should be 8 inches in diameter. The soil used in potting them finally should be of a lighter kind than that used for those of stronger growth. The following preparation is suitable: To three parts of half-decomposed fibry loam add one part each of half-decayed leaves, used in a rough state, and the materials of a spent Mushroom bed, half a part of wood ashes, the same quantity of fine ground bones, one part of coarse silver sand and charcoal broken about the size of Hazel nuts, the quantity to be in proportion to the nature of the loam, be it light or heavy. This materially aids in keeping the whole porous—a point of much importance during the summer, when water must be applied at times copiously. If the loam is of a strong nature the fine soil should be taken out by passing it through a sieve, retaining only the fibrous parts, as the fine soil prevents to some extent the free passage of water from the roots. The pots should be very carefully drained, and the soil pressed firmly around the roots, but not quite so hard as in the case of the stronger growers, weak varieties not making roots in the same proportion as the others. The great point, then, is to prepare suitable soil, have the pots of the right size, treat the plants judiciously with regard to watering in all stages of growth, and satisfactory results may be anticipated, if other requisite details in treatment are carried out. It is a good plan to stand these plants by themselves during the summer, as they are then more directly under control, and are not so apt to be overlooked as when placed among the general collection. Stimulants should not be applied to them in the same quantity and strength as to those of more vigorous constitution.

The following varieties need the special treatment indicated:—

**JAPANESE.**—Balmoreau, Criterion, Golden Dragon, Garnet Agreements de la Nature, Japonaise, J. Delaux, Margaret Marrouch, Madame de Sevin, M. Ardene, M. Astorg, Mons. Tarin, Mrs. Mahood, Mr. John Laing, Sceptre Toulousain, Beauté des Jardins, and Mons. H. Jacotot.

**INCURVED.**—Barbara, Cherub, Empress Eugenie, Lady Carey, Lady Hardinge, Mr. Bunn, Mrs. W. Shipman, Nonpareil, Princess Beatrice, Sir Stafford Carey, Angelina, and Lady Slade.

**ANEMONES.**—Fleur de Marie, Mdle. Cabrol, Madame Clos, and Sœur Dorothee Souille, to which may be added the two reflexed forms, Dr. Sharpe and Empress of China.

### HINTS ON GROWING NOVELTIES.

Some growers of Chrysanthemums have a strong fancy for "novelties," and are induced to procure nearly all the new varieties as fast as they appear. I say nothing against experienced growers indulging in this floral luxury, but the inexperienced cultivator who is desirous of forming a first collection may easily err in this respect. He sees the descriptions of so-called novelties, and assumes they are improvements on older varieties. This by no



means follows. They may be distinct without being superior; indeed, I venture to say that quite three parts of the new sorts sent out in such glowing terms are not equal in merit to many of the older varieties. What I wish to impress upon beginners is this—Do not rely on catalogue descriptions entirely, which are in the majority of instances copied from French raisers, and the colours as set forth are not always to be found in the flowers produced; and never buy a variety without first hearing something good of it from someone who knows its merits and has nothing to gain in describing them, for it is an assured fact that if a new variety has the necessary qualifications it will not remain long in seclusion. No little disappointment has been caused by purchasing all the new varieties which were expected to produce wonderful flowers. Instead of this it has often been found that time and space have not been well occupied in growing them. Far better is it to grow an extra number of plants of those varieties which experience has proved can be depended upon as certain producers of first-class flowers under first-class culture, than for a grower with limited experience, money, and space to overburden himself with so-called "novelties." If those persons who are responsible for the descriptions of new varieties were to adopt a much more simple way of describing their qualities they would be doing a public service, enabling growers to purchase the new sorts with much more confidence than at present.—E. MOLYNEUX.

(To be continued.)

### THE CULTURE OF PEAS.

WEATHER permitting, I shall make my general sowing of Peas this week, both for profit and exhibition, and shall continue making small sowings about every fourteen days afterwards for late shows or culinary use. I shall make sowings of the varieties previously recommended, and from them shall be able to choose Peas of sufficient merit or quality either for a collection, a single dish, or for culinary use. As the Peas grow I keep gradually earthing them up until they are from 4 to 6 inches in height, then I commence placing sticks to them about 12 inches long. When the Peas have grown to the height of these sticks much longer stakes are employed, according to the height the Pea is supposed to grow. Each row is carefully examined, and wherever the plants are closer than 4 inches apart I draw the weakest out. If the Peas are required for exhibition I watch and carefully train them, tying the haulm to the stakes with matting; in so doing I save many a good pod that I am able to use for exhibition which would otherwise have been broken by strong winds.

When the Peas have flowered and commence podding is the time to decide whether they are intended for exhibition or profit; if for the former, as soon as the peas are formed in the pods pinch off one of each pair of pods and leave the others growing singly. By so doing the pods will be nearly one-third larger than if left to grow in pairs. When the Peas commence swelling and I think they require a little liquid manure, I take the garden spade and raise the soil about 3 inches each side of the row and round the ends, so as to form a small shallow reservoir, into which I pour the liquid. Peruvian guano is sometimes used, about one handful to two gallons of water. You need not be afraid of killing the Peas with liquid manure of any kind, as I have found from experience that it is almost impossible to do so. Give them three applications of liquid a week; they will only require it for about two weeks, unless the weather is very dry and hot, and then I use it much earlier, as I find it does in the place of watering, and of course is much more stimulating to the plants. When you commence using the liquid manure no more lime will be needed, as the slugs have a great disliking to guano.—HY. MARRIOTT.

I AM fully aware Mr. Marriott is a most excellent cultivator, but with one exception I should not advise sowing the Peas he names at the present time. I find from many years' practice that you cannot sow wrinkled Peas with safety before the first week in April, and the majority of those he names are wrinkled. Evolution, being a blue round Pea, can be sown at the present time, but I should very much doubt if any of the others would be a success. These Peas I should average would cost 5s. a pint round, and the expenditure of 40s. for eight pints of Peas, sowing them all in one day, would scarcely be prudent in ordinary practice.—KITCHENER.

### A USEFUL MANURE.

In your most valuable paper of 31st of December last Mr. J. Swan calls our attention to what he designates "a useful manure." The plants for which it is by his account so well adapted are amongst those I am striving to cultivate satisfactorily; and his success makes me wish to prove the power of the manure, but I fail to properly understand this method of mixing it. When he says, "If having a quantity of night soil on hand mix it with half the bulk of the earth," does he mean half as much burnt material as night soil? Secondly, in what proportions would it be advisable to use it for the plants he mentions? how much to a barrowload, or any quantity larger or smaller? The Melons and Cucumbers, he gives us to understand, can be grown in equal parts in pots. Your kindness and able advice in the past encourage me to apply again in the hope that I may meet with similar treatment.—YOUNG GARDENER.

[In reply to the letter from a "Young Gardener," I may say he has

correctly defined my meaning in reference to mixing the manure—namely I recommend half as much burnt earth as night soil. When left to accumulate in an exposed state it is not so effective as the same quantity of manure when mixed at once with the burnt earth owing to the loss of nitrogen by evaporation. For *Celosias*, *Cockscombs*, and *Gloxinias* I use the manure at the rate of one barrowful to two of loam, and for *Zonal Pelargoniums* and *Balsams* equal parts of manure and soil. The latter luxuriate in the above mixture without any leaf soil. We grow ours in 6-inch pots, and the plants become extremely large and floriferous, some of the flowers being 3 inches across, and if not allowed to seed they will flower for three months. I recommend potting firmly, as the burnt earth has a loosening effect on the soil.

For Chinese *Primulas* the compost consists of one barrowload of light soil, three of loam, and a half barrow of leaf mould; but the soil is only part of the means to secure success. I treat my *Primulas* as follows:—I sow the seeds about 15th March in pans well drained and filled with a mixture of equal parts of loam, leaf soil, and powdered charcoal, cover the seeds with the latter; and I find they germinate more strongly out of the charcoal owing to the ammonia supplied by the same. They are lifted with the roots clinging tenaciously to the particles of charcoal, and are scarcely checked in removal from the seed pans. I dip the pans when water is required in preference to using the watering can, and plunge them in a temperature of 65°. When the seedlings are up I put the pans on a shelf near the glass to keep the young plants sturdy as possible, for if weakened in the pans nothing will make up the deficiency. As soon as they have made four leaves they are pricked out in boxes 2½ inches deep filled with a mixture of one part of night soil to two each of loam and leaf soil. With some half-decayed leaves (Beech if possible) the soil is pressed firmly and watered, and when nearly dry the seedlings are pricked out 4 inches apart; keep them in the stove till they have again taken hold of the soil, giving them a little shading meanwhile, some tissue paper does very well. Remove them to the warmer part of the greenhouse to be gradually hardened, so that they may be placed in cold frames by the 1st of June. By the middle of July they ought to be large sturdy plants ready for 5 and 6-inch pots, which I think best for almost all purposes of decoration.

I prefer the shallow boxes for several reasons. First, the soil is more easily kept in a uniform moist condition, which is a nice point in *Primula* culture, and one not easily attained when they are grown in pots; also in transferring them to these large pots you get the balls of roots whole, and being confined in small compass they are cut in squares with a knife. The result of this treatment is the multiplication of roots, the same as the famous Clovenford process for treating young Vines; and the slight check received is more than compensated for by the extra number of roots produced to take to the new soil. If the plants in the boxes are watered before potting them, and the soil is in proper condition as to moisture, the frames being kept closed for a week and shaded, they should not need any water for that time at any rate; and this is of great advantage in insuring a good start. If the pots have been unused for some time they must be soaked in water for half an hour, taken out and left to drain before being used. The plants must have plenty of room in the frames, sufficient space being allowed between them for the free circulation.

It is advisable to pot the plants firmly, for they have very fine roots and are easily affected by drought if the soil is loose. Pot them well down in the soil, as this prevents large plants twisting about. Of course the flower stems must be picked off as soon as they can be seen throughout the growing season.—JOHN SWAN, *Kilmalcolm, Renfrewshire.*

### RHODODENDRON FORMOSUM—HYBRIDS.

SEVERAL handsome *Rhododendrons* are grown in conservatories now, and either planted out or in pots and tubs they are much appreciated ornaments for such structures. The Himalayan species are the most beautiful as regards the size and individual importance of the flowers, but unfortunately they are mostly rather unsatisfactory in habit. They are apt to produce long straggling branches bearing heads of flowers at their extremities and with the lower portions bare of foliage. This tells more against their employment than anything else; but happily there are some other species of *Rhododendrons* suited for the same structure, but possessing a compactness of habit combined with a floriferousness that renders them very useful. One of these is *R. formosum*, by no means a novelty, yet not common even now. In a few large conservatories like that in the Regent's Park Botanic Garden and in the Winter Garden at Kew, good examples may be seen that, when bearing their pure white flowers freely in April or May, have a charming effect. The late J. H. Mangles was an admirer of this plant, and from his well-grown collection the flowers and shoot engraved (fig. 15), were sent some time ago. It is a good form of the species, as the flowers are sometimes smaller and less expanded than shown in the cut. It requires a good, free, peaty compost, with plenty of sand and thorough drainage when grown in pots.

*R. formosum* has been employed by several hybridisers in crossing with other species, and Mr. J. Anderson Henry, who paid much attention to the matter, related some interesting particulars concerning this and allied *Rhododendrons* in the *Journal of the Royal Horticultural Society* (1873) which may be repeated here. After noting some peculiarities in the hybridising of *Veronicas*, he proceeds as follows:—

"I have no doubt something of the same kind occurs among *Rhododendrons*. But I may only instance one case where I crossed *R. Edgworthii* on *R. caucasicum*; the seedlings, ever few when the cross is a severe one (by which term I mean such instances as where the species do not affect



each other kindly), were only two in number; and though now about ten years old, they show no indications of setting for flower. But while they have both the glabrous foliage of the seed-bearer, and even the ochreous tint underneath, they differ in having pyriform instead of its lanceolate leaves. But though in these particulars they depart from the normal state of *R. caucasicum*, they have not one feature of *R. Edgworthii*, the male parent. The other case is where I crossed the same *R. Edgworthii* on *R. Jenkinsii*. Here the seedlings, again only two in number, resembled the mother, except in having again the pyriform foliage, in which, he it observed, it is a departure from both parents, both having lanceolate leaves, those of *R. Jenkinsii* being acutely so. The hybrid in this latter case is budded for flower; but the flowers of both parents are white, and both sweet-scented, and among the largest of the genus, though the scent, texture, and forms of the flowers are different; so that I look for surer tests in the coming flowers, though these may be more perplexing too than any that yet appears. It is proper to observe that I take the utmost precaution in all my crossing operations to prevent miscarriage in any possible way.

"While treating of my difficulties with this *R. Edgworthii*, one of the most peculiarly constituted as it is one of the most peculiarly featured of all the *Rhododendron* tribe, having its rugose leaves densely pubescent on the upper while it is perfectly shaggy with tomentum on the under side, every stem being clothed with the same tomentum, I have another most

"vocabulary of abuse." I cannot allow even "*D., Deal,*" to employ a phrase, attribute its authorship to another, and found thereon a charge of something more than discourtesy against me, however worthy his object may have been in doing so. I have heard "*D., Deal,*" described as a "facetious man," and I have no objection to his indulging in a little fun at my expense in a reasonable way. More anon.—A THINKER.

#### BOWOOD MUSCAT GRAPE.

I WAS much interested in Mr. Thomson's remarks respecting this Grape (page 48), as it refreshed my recollection of the pen and ink war he refers to, which I well remember, and as the Editor invites the opinion of other experienced readers I for one have pleasure in relating mine. When I took charge of these gardens I found a house recently planted with Vines, and among several others were Muscat of Alexandria and Bowood Muscat. The latter I had then no knowledge of, but for a good reason it soon became a favourite of mine by its being a frequent first prizewinner. These Vines, which are now things of the past, were early forced every year, and I never could succeed in getting a perfectly set bunch of Muscats except from Bowood, which is one of its always superior qualities. This is not certainly its only distinctive feature. As compared with Muscat of Alexandria, the latter is long both in bunch and berry; whereas the Bowood bunches are shorter, heavily shouldered, and the berries more egg-shaped than Pear-shaped. In regard to colour, and flavour the two are equal, but the primary difference is the free-setting quality of Bowood. I have no doubt the cause of so many believing in the identity of the two sorts is that the true variety is little known. I have, like Mr. Thomson, bought what had been called Bowood, but not true.

I observe, among other remarks of Mr. Thomson's, he considers Gros Maroc very inferior in all respects to Gros Colman except in colour, which I thoroughly agree with, and would further say that in my opinion it is the worst flavoured Grape I know, and should never be awarded a prize except for colour. Gros Colman, when ripened thoroughly black, which can only be accomplished by a long season and plenty of heat, is in my opinion the best late Grape we have, though I admit it cannot be kept good so long as Lady Downe's, and I shall be much mistaken if in a few years Gros Colman will have become one of the most extensively grown Grapes in cultivation.—RICHARD WESTCOTT, *Raby Gardens*.

As you invite the opinion of experienced men as to the identity or otherwise of the above-named Vine with the Muscat of Alexandria I gladly offer the following.

I well remember the Bowood Muscat Grape being figured in the "*Florist*," and as I was at that time about to plant a vineyard with the object of having late Grapes, I wished to give the preference in greater part to Muscats. I felt interested in getting variety if such was to be

obtained, and acted upon that idea. About the same time, too, the late Mr. Pontey of Plymouth gave an account of a Muscat growing in the gardens at Tehidy Park in Cornwall, which he named Muscat Passique as being distinct and well worthy of recognition. His description was asculogistic as that of the Bowood which was then so prominently before the public.

I had a friend who volunteered to get for me the Tehidy variety. I had access also to a good old Vine of the Muscat of Alexandria, so I carefully reared plants of the two above named, and the Bowood I obtained direct from the late Mr. Turner of Slough. Now, as he was a gentleman of the highest honour, and, moreover, associated with Mr. Spencer of Bowood as joint editor of the "*Florist*," it seems impossible to suppose I could have had the Bowood from a better source. The three varieties so called were planted side by side, and have grown so to this day without my ever being able to detect the slightest difference.

Many of the readers of the Journal will doubtless remember a fruit catalogue issued antecedent to the above date, and compiled by Mr. Thompson of the Royal Horticultural Society's Gardens, which was a very reliable guide to fruits of all kinds, and in it a prominent feature was that all the best known, whether among Apples, Peaches, Vines, or any other fruits were shown to have many aliases or synonyms, and I apprehend the good old Muscat of Alexandria was as well worthy as any to be thus represented; hence, a sufficient reason if the fruit tree succeeded in a better manner than ordinary either by culture or situation, men were induced to believe in all sincerity that they had a superior variety, and a name to distinguish it from others was given to it. In that way I think a *bona fides* was given to mark its excellence, and those who accepted this theory were assured that a really good thing was secured to them, and from which they could not possibly suffer disappointment.—J. ENSTONE.

#### FERNS.

I HAVE read the whole of Mr. Newsham's lecture on Ferns published in your columns, and I consider that some of the statements it contains



Fig. 15.—*Rhododendron formosum*.

singular peculiarity to note in regard to it—namely, that while it will cross other species, it will take on a cross from none,—that is to say, while it has been repeatedly made the male, it has never with me, though I have tried it often, nor with any other that I have heard of, submitted to become the female parent. I have crossed it repeatedly on *R. ciliatum*, one of the minor forms, too, of Dr. Hooker's Himalayan species. It has been crossed, too, on *R. formosum* in this neighbourhood, I believe, in the Stanwell Nursery; but I could never get it to take on any cross whatever. *R. Nuttallii* behaved with me in the same manner; it would cross, but not be crossed; but I did not persevere with it as I did with *R. Edgworthii*. Now I do not assert absolutely that *R. Edgworthii*, in the numerous tribe of which it is a member, may not be hybridised with some other of its kindred, but I could never get it to reciprocate a cross. And this remarkable circumstance of non-reciprocity has perplexed and defied me in innumerable instances throughout my long experience in these pursuits. It occurred to me that the pollen of larger forms might be of larger grains, and so might not pass through the necessarily small ducts of the styles of smaller species: yet *R. ciliatum*, a tiny species of 1 foot high, was crossed freely by *R. Edgworthii*, as I have just noticed, a species of 6 feet high. I even crossed this latter species on a pure Indian *Azalea*, though, by pulling the seed-pod before it was ripe, I raised no seeds of this latter cross."

An extensive progeny was also obtained by crossing *R. Nuttallii* with a hybrid obtained from *R. formosum* and *R. Dalhousianum*, amongst which were some seedlings of great merit.

"*D., Deal,*" AND O'CONNELL.—Permit me to say, in answer to a curious paragraph on page 27, that I will show in an early issue that "*D., Deal,*" is entirely inaccurate in his quotation from O'Connell, and that the term "individual" cannot be legitimately included in the



are of a misleading nature. The first error I would refer to is that *Lastrea dilatata* is said to be known as the common Male Fern. The common Male Fern is the *Lastrea Filix-mas*, and *L. dilatata* is the Broad Buckler Fern. The next part of Mr. Newsham's paper I will call attention to is as follows:—"Of the forty-eight British Ferns we have twenty-one rock Ferns, twenty-one which inhabit rich soils, six marsh Ferns." Now, I infer from the above that Mr. Newsham intended his hearers to understand that we have forty-eight distinct species of British Ferns. But the whole of the pteridologists are against him, for forty-three to forty-five are all that are accepted by any one of the writers on the subject. The following is a list of the species that are accepted as such by all who are considered authorities on the subject:—*Adiantum Capillus-Veneris*, 1; *Allosorus*, 1; *Asplenium*, 9; *Athyrium*, 1; *Blechnum*, 1; *Botrychium*, 1; *Ceterach*, 1; *Cystopteris*, 3; *Gymnogramma*, 1; *Hymenophyllum*, 2; *Lastrea*, 8; *Osmunda*, 1; *Ophioglossum*, 1; *Polystichum*, 3; *Polypodium*, 4; *Trichomanes*, 1; *Scolopendrium*, 1; *Pteris*, 1; *Woodsia*, 2; in all 43; and I believe in no more that are worth the rank of species.

The next part of the lecture in question is his reference to liquid manure. The following are his own words:—"Liquid manure I rarely use. I look upon it as teetotallers look upon beer. It may be, in fact I believe it is, useful when given to a plant which is sickly; but even then it must be very weak. If the Ferns thrive well, let well alone." I wonder what a teetotaller would say to a doctor recommending beer to a sick patient and at the same time condemning the use of it by those in good health. I feel certain that such advice is not from experience. But I have reason to believe that healthy plants are benefited by occasional supplies of liquid manure, but I should withhold it from any plant in a sickly state.—A CONSTANT READER.

### WINTER DIGGING.

As this is an important matter with most gardeners, and as opinions differ as to the best methods of ameliorating the soil, I beg to suggest a method which I have not seen advocated in your columns, but which has proved very beneficial. Some years ago I took charge of a garden at the commencement of the new year; my predecessor had got the work up so far close by having had nearly all the vacant ground dug. The weather had been very wet; the soil was a strong clay. One of the labourers said, "That ground is ruined for two or three years, but he (my predecessor) would have it dug let the weather be what it would," and suggested that what vacant ground there was I should have ridged like Mr. ——— had them done years ago. Observing that he was a good workman and of good common sense I allowed him to lead and do it as he thought best. "I suppose 2 feet 6 inches apart will do; that will do for Peas and 'Taters both, also for Cauliflowers." "Just so," said I, "do the best you can." He commenced by marking off the ground (being careful to see that it ranged with the adjoining quarters 2 feet 6 inches apart; then taking the soil from alternate spaces and laying it on the solid soil similar to taking out the soil for a Celery trench, the moved soil, by being laid above the surface, was fully exposed to the action of the weather, and when the time came for planting the exposed soil was found to be very friable. The trenches were refilled, drills drawn, and Potatoes planted, the spaces between forked over, thus leaving all the ground in good condition. For Peas the same method was adopted with Spinach between, but prior to filling in the trenches a heavy coating of manure was put in and the soil filled in. For strong soils this is the best method I have ever practised. It is not necessary in all places.—J. GADD.

### THE PERCIVAL COLLECTION OF ORCHIDS.

THE large and renowned collection of Orchids formed by the late R. P. Percival, Esq., Cleveland, Birkdale, Southport, have been entrusted to the Liverpool Horticultural Company for sale. Some idea of the extent of the collection may be formed when it is stated that the plants numbered over 4000, and comprised according to the catalogue 1352 lots. This was much the largest collection of these plants in that part of the country, and was on view from January 25th to Tuesday, February 2nd, when the sale of the plants actually commenced. It would not be known until the following day or two who really became the owners of some of the most important plants that the collection contained, for although all the plants were priced it was provided that in case more orders than one arrived for each plant they would be placed on one side on the morning of the 2nd inst., and after informing the buyers, not present, by telegram, would be sold by auction the following day.

On Wednesday, January 27th, a large company was invited to inspect the collection, and numbers of gentlemen and gardeners were present from various parts of the country. An excellent lunch was provided, at which probably 150 or more persons were present, including amongst others Mr. G. Bethel, gardener to the Duke of Marlborough, Blenheim; Mr. E. Cooper, gardener to the Right Hon. Jos. Chamberlain, Highbury, Birmingham; Mr. Swan, gardener to E. G. Wrigley, Esq., Howick House, Preston; Mr. Hathaway, gardener to the Earl of Latham, Latham House, Ormskirk; Mr. W. Moss, gardener to W. Holland, Esq., Mossley Hill; Mr. Glover, gardener to Sir A. B. Walker, Bart., The Grange, Woolton; Mr. W. Mease, gardener to C. W. Newmann, Esq., Wyncote, Allerton; and Mr. Bostock, gardener to Enoch Harvey, Esq., Riversdale, Aighurth. The toast to Orchid growers and gardeners was suitably responded to by Messrs. Swan, Cooper, Glover, and Mr. R. G. Waterman, gardener to A. Tate, Esq. The two former Orchid growers both highly

complimented Mr. Beddoes, who had grown this excellent collection for the late Mr. Percival, on the healthy condition of the plants generally. It is indeed difficult in a large collection to maintain every plant in the highest state of health, for both had found from experience that plants were very much like individuals, and some out of a large number were sure to be on the sick list. It was clear from the remarks of these two able cultivators that they attributed much of the success that had been attained with this collection to starting with fresh healthy plants. Mr. Swan strongly advised beginners, in fact all who desired to have plants in a satisfactory state of health, to commence with strong healthy pieces. Their remarks fully bore out what has appeared in these pages that large established plants are liable to go back, at least for a time, when they pass into other hands.

Mr. Swan raised the question of pruning and syringing for discussion. It is clear that the advocates of the former amongst Orchid growers are exceptions. Judging from what was said on this subject further pruning than the removal of spent pseudo-bulbs—that is, after they commenced shrivelling, were not believed in. Much discussion was raised on syringing, and there were present strong advocates of both systems. Mr. Cooper strongly condemned the syringing of *Phalaenopsis*, and stated that when this practice was adopted he could not keep them in good condition through the winter, but had succeeded admirably since he discontinued it. Mr. Cooper being an advocate of low temperatures preferred the plants to have moisture naturally deposited upon them in the morning. Mr. T. Moss advocated a free use of the syringe daily, and found that only beneficial results follow, provided care be taken to evaporate the moisture from the axils of the leaves and growths before evening. He also devised other means to attain this end, even if a piece of sponge were used for the purpose; but this is too laborious an operation, and could not commend itself where large numbers of plants are grown. Mr. Swan's remarks on this subject were general, believing, as he does, in a judicious use of the syringe, fully taking into consideration the weather, position and construction of the house in which the plants are grown, as well as other varying circumstances that the grower has to contend against. Liquid manure for Orchids was another topic raised by some whose names I failed to obtain. It was generally agreed that liquid was beneficial for terrestrial Orchids, but for epiphytes it was not wise to use it farther than to stand it about the house to be evaporated in the atmosphere. It may be mentioned that the collection that had been under Mr. Beddoes's charge had enjoyed a judicious use of the syringe, and no one could fail to admire their clean healthy condition.

To return to a brief notice of some of the leading plants in this collection which filled four of the largest houses in the Vineyard. The plants were arranged under numbers, and with the aid of the catalogue were easily found and examined. The *Cœlogynes* were wonderfully healthy, and the plants of *C. cristata* varied in price from 5 to 20 guineas. Some of the pans in which the plants were growing were 33 inches in diameter, and contained no less than 320 pseudo-bulbs. A plant of *C. Lemoniana* (Trentham variety) in a 30-inch pan, remarkably fine, with 210 large pseudo-bulbs, and over 3 feet in diameter, was priced at 25 guineas. The variety makes an enormous difference in the price; for instance, two other specimens, probably 6 inches more in diameter, were offered for 8 guineas each. A very healthy plant of *C. Maessangeana* with five leads was on view for 20 guineas; *C. Lowii*, two leads, one flower spike, 5 guineas.

*Laelia anceps* and its varieties were very numerous with quantities of flowers, but the house was not suitable for their opening. Some of these plants were really splendid, being most luxuriant in growth; as an example, one plant with thirty-seven pseudo-bulbs and eight flower spikes may be mentioned. The growth was fully double the strength this variety is usually seen. Some idea can be formed when I state that the leaves were 3 inches wide and proportionately long. The plants of this variety, thirty-seven or thirty-eight in number, varied in price from 10s. 6d. to 12 guineas, while a plant of *L. anceps Percivaliana*, with ninety pseudo-bulbs and twenty-four flower spikes, was 100 guineas. Another plant, with thirty-nine pseudo-bulbs and eight spikes, 40 guineas. The next was a large plant of *L. anceps* mixed with *Percivaliana*, 20 guineas. *L. Percivaliana delicata* (this is the whole stock of this variety), twenty-eight pseudo-bulbs, three flower spikes, 20 guineas. Plants of *L. Hilli*, with three and four flower spikes, 10 guineas each. *L. Dawsoni*, twelve pseudo-bulbs and one spike, 17 guineas. Smaller plants, with three, six, and seven pseudo-bulbs, 3, 5, and 15 guineas each. A small plant in a 5-inch pot of *L. D. alba* (Bull's variety), with eight small pseudo-bulbs, 10 guineas. A plant of *L. anceps Barkeri*, with fifty-eight pseudo-bulbs and fourteen spikes, said to be a fine variety, 30 guineas; and five smaller plants, varying from 5 to 10 guineas. There was a good stock of semi-established plants of *L. a. nivalis*, varying in price from 10s. 6d. to 58 guineas.

*Cypripediums* were not numerous, but all were in robust condition, and some of the plants remarkably large and well flowered. *C. villosum* (Rollinson's variety), with fourteen flowers, 10 guineas. Another plant, with fifty-six flowers good variety, very fine, 12 guineas. *C. superbiens* (Prince Demidoff's variety) was remarkably good, having ten growths, price 10 guineas. There was also a grand plant of *C. insigne punctatum violaceum*, with twenty growths, 20 guineas. Smaller plants at 5 and 10 guineas each. *C. insigne Maulei*, very strong, twelve growths, 5 guineas. A plant of *C. Dominianum*, fifteen growths, 10 guineas. There were also fair plants of *C. caudatum*, 10 guineas. *C. Sedeni*, with twenty-three growths, the same price. *C. selligerum*, fifteen growths, 8 guineas. *C. Spicerianum*, with seventeen growths, 10 guineas. There were several plants of this variety all wonderful for their luxuriant growth.



*C. lævigatum*, twenty-two growths, 8 guineas. The plants of *C. concolor*, *C. ciliolare*, and *Lawrenceanum* were all small, but remarkable for health. There were seven plants of *Cypripedium eburneum* with from five to sixteen leads, and were quoted at from 3 to 10 guineas each. *Ada aurantiaca* was a magnificent plant with twenty-nine leads, 5 guineas. The old *Zygopetalum Mackayi* was represented by plants with ninety-six bulbs and twenty-four leads bearing as many as seventeen flower spikes, price 5 guineas.

Cattleyas were the principal feature of this collection, and *C. Mossiæ* was represented by no less than sixty-five lots in the catalogue, varying from magnificent masses on rafts, with 280 pseudo-bulbs, showing thirty-eight flower sheaths, and priced 20 guineas, to small plants 2s. 6d. to 5s. each, but the majority amounted to guineas each. Noticeable was a fine plant of *C. M. Arnoldiana*, with seventy bulbs and ten sheaths, at 20 guineas. *Cattleya Percivaliana* was represented by a large number of plants in the best condition. One large plant on a raft, with 170 pseudo-bulbs and sixty fully developed flowers, was very beautiful. 100 guineas was required for this plant; 75 guineas for another with thirty-five flowers on a raft, 20 guineas for another with nine flowers, 50 guineas for another with thirty-six bulbs and six flowers, this being the plant that produced the flowers figured in the "Orchid Album." There were also two plants of the white form of the above at 15 guineas each, one having ten bulbs and two sheaths, and the other one sheath and ten pseudo-bulbs. *C. Skinneri* was very well represented, the largest plant with 316 pseudo-bulbs, 30 guineas, was not in the best of condition. Another, 25 guineas, with 140 pseudo-bulbs. *C. S. oculata*, a plant with the same number of pseudo-bulbs as the last, 40 guineas. A plant of *C. Mendeli*, with 158 pseudo-bulbs and twenty flower sheaths; another with forty-four pseudo-bulbs, five flowers, good variety; a third, with seventy-seven pseudo-bulbs and eleven flowers; a fourth, with seventy-two pseudo-bulbs and ten flowers, were priced 50, 25, 20, and 20 guineas respectively in the order named. *C. Mendelii aurea*, with eighteen pseudo-bulbs, 10 guineas. The flowers of this plant were figured in the "Orchid Album." Another superior variety, twenty-eight pseudo-bulbs, 15 guineas. *C. labiata* (autumn-flowering variety), with twenty pseudo-bulbs, 20 guineas. Three other plants, two with seven pseudo-bulbs each and one with eight, were 12, 10, and 7 guineas in the order named. A fine variety of *C. exoniensis*, with two leads, 25 guineas, and a small but very healthy plant of *C. Brymerianum*, with twelve pseudo-bulbs, two small leads, 25 guineas. *C. Mossiæ Hardyana*, two leads, 15 guineas. *C. Sanderiana*, 140 pseudo-bulbs, forty-two leaves, marked A1 variety, 30 guineas. The highest price for *C. gigas* being 10 guineas, and the same for *C. Gaskelliana*. *Lælia elegans alba*, forty-eight pseudo-bulbs, three flower sheaths, four leads, 50 guineas. Other plants, with four and five leads, 25 guineas each, the first being marked A1 variety. *L. Schilleriana*, six leads, 15 guineas. *C. Trianae* was represented by a number of plants. A specimen named *formosa*, with sixty-two pseudo-bulbs and seven flower sheaths, 20 guineas. Another plant, with forty-five pseudo-bulbs, 15 guineas. *C. T. Osmani*, thirty-six pseudo-bulbs, three sheaths, 20 guineas. The same price being required for *C. T. Normani*. Amongst *Dendrobiums* the highest prices were 10 guineas each for *D. Schrederi*, *D. clavatum*, *D. densiflorum*, *D. Jamesianum*, *D. fimbriatum oculatum*; *D. Wardianum*, 8 guineas; *D. snavissimum*, *D. chrysotoxum* at the same amount; and *D. Ainsworthi roseum*, 10 guineas; *Lycaste Skinneri alba*, with one lead, three fine flowers, 15 guineas. Another plant, with two leads and the same number of flowers, the same amount. *Oncidium macranthum*, 8 guineas.

To attempt to enumerate all the leading prices of the principal plants this collection contained would take up too much of your space. Prices very similar to what have been given were quoted for plants of other species and varieties of Orchids that I have not attempted to name, and I do not doubt that when the whole of the plants have been disposed of many of the prices given will be considerably exceeded. There appeared to be no lack of Orchid enthusiasts after the rare and valuable varieties which this collection contained. It would indeed be very difficult to estimate the number of Orchids in the Garston Vineyard at the present time, for quantities of houses are full of semi-established plants, others newly potted up, besides thousands of newly imported in every shed and corner likely to suit them until they are disposed of. Two or three other large importations are daily expected, and it may truly be said there are Orchids everywhere, and those who have not seen the enormous quantity of plants on previous occasions would naturally wonder when the whole would ever be disposed of.

This is only one branch of horticulture carried on by the Company, for Roses, Vines, and decorative plants of every description are grown by thousands to meet the demands of their cut-flower and plant trade.—WM. BARDNEY.

#### USEFUL WINTER VEGETABLES.

THE past was undoubtedly a very dry summer, and has caused many bare places both in market and private gardens, consequently green vegetables are very expensive. In some counties these can scarcely be obtained at any price, in Berkshire and Oxfordshire notably. Those who made good provision by growing plenty of Seakale will fully realise its usefulness in a spring like the present is likely to be. I have before written in these columns of its value. Where it has been properly cared for the whole stock was taken up in November, except where a quantity is required through April and early May, then one row is taken out and two left; but I think almost as good a way is to clear the whole plot and lay in the crowns in a late corner in the soil yard or in the garden, and

cover with litter before it begins to grow. If it is allowed to grow before covered it will not come a good colour. I have found cocoa-nut fibre refuse very useful for covering it, as also is bog mould where at hand. Seakale is seldom refused at table, and it may be had from the end of November until the following May.

Another vegetable I much esteem is the old-fashioned green called Ragged Jack. A provision may always be made for a few rows of this hardy useful vegetable. I have never seen this destroyed by frost; in fact, I never had a failure with it, even when the garden has been bare of other green vegetables or nearly so. In a dry season I sow seed in drills the same way that I should sow Turnips, except that the rows for the greens are 18 inches apart. I have found Lapland Kale do well grown the same way, and they will amply repay for a little trouble in shading or netting to protect them from birds. Spinach Beet should be in every garden of however small pretensions. It is useful at all seasons. Swede Turnips should have the leaves twisted off instead of being cut off, leaving the crown intact, as the young growths produced when the Turnips are placed in a dark shed are often used when Seakale is not plentiful. I consider this makes a very useful dish, much better than what is often seen in gardens under the name of Seakale.—J. P.

#### WINTERING POT STRAWBERRIES.

MR. CHALLIS remarks in the third paragraph of his interesting paper (page 61) on this subject, that while the method of plunging the pots in an upright position either in leaves or ashes effectually overcomes the evil of undue exposure of the roots, it is still open to serious objection; and in support of this assertion he says "that in very dry positions or in dry winters no harm may ensue, but in damp situations or in wet winters this often leads to most disastrous results by the plants being kept in a constantly wet and sodden state during the period of rest, when comparative dryness should be their condition(?)." I beg to point out to Mr. Challis that there is no necessity for Strawberry plants plunged to the rim of the pots in ashes in an upright position becoming sodden at the roots during wet winters, seeing that the site selected for that purpose can and should be higher than the ground surrounding it, in order to prevent the possibility of water settling there. Such a situation is the best possible winter quarters. We have wintered about 3000 Strawberries in this way annually for the last fourteen or fifteen years with perfectly satisfactory results. In the event of severe frosts we cover the plants lightly with dry fern at night, which—the plants occupying a sunny aspect—is removed the following morning as soon as the influence of the sun has rendered such a course practicable. The evil of the plants becoming blanched in consequence of the covering being left too long over them is certainly very great, but is nevertheless more imaginary than real in practice, though undoubtedly if the protecting material were allowed to remain unnecessarily long on the plants the latter would become somewhat blanched and impaired in consequence.

I should like to know upon what grounds Mr. Challis arrives at the somewhat strange conclusion that the condition of Strawberry plants in pots which are laid on their sides during the winter and early spring months, is "more nearly like that to which they are naturally accustomed." We all know as a fact that the Strawberry plant in its natural state in gardens, and that, too, during the resting period, when Mr. Challis says it should be comparatively dry, receives direct from the clouds three times the amount of water at the roots that it does at any other time, thus plainly proving that the Strawberry is not only perfectly hardy when "comparatively dry," but also when perfectly wet. The conditions under which the Strawberry plant naturally flourishes out of doors are not quite in harmony with the ideas advocated by your correspondent.—W. S.

I READ with much pleasure, at page 61, Mr. Challis's excellent remarks, and I assure him the plan is exactly the same as that practised by my lamented old master, George MacEwan, at Arundel, who used to grow Strawberries with great success. It is also the plan I have followed for at least thirty years; in fact, it is the only practical one.—R. GILBERT.

#### FARMERS AND GARDENERS.

I THANK "Thinker" for his kindly remarks on my small contribution to the discussion at present going on in the pages of the Journal on the above subject. With nearly all that "Thinker" says I agree, and when I say this, my points of divergence from "Utilitarian" will be plain enough, and need not be stated here.

I may, however, remark in regard to one of "Thinker's" sentences, that he has somewhat misunderstood me when he asserts that I seem to imply that our old country will be "bowled out of existence" by the competition of other lands. I never thought so, and never meant anything I wrote to be understood as meaning so. I could not help taking notice of what is only too apparent—viz, that foreign competition is on the increase, and will go on increasing as years roll on. I endeavoured to make plain that such competition must be met on our side by certain measures which I named, and added that though "some may go to the wall in the struggle . . . that the majority will be able to 'rub along,' . . . so that a due reward may be found attending the labours of those who, having found many things against them, resolutely set themselves to overcome all difficulties." That is not the language of one who fears that our country will be "bowled out of existence."

Then, in regard to horticulture, I remark that "horticulture generally . . . seems passing through a trying time, but let us again hope that the



result of all its trials may be an increased hold on the people," &c. This again is not the language of one who thinks his country is on its "last legs." There is so much that can be said on such matters as the "gentleman market gardener" who sells from necessity, the same individual who sells from choice; the market gardener who has to complain of unjust rating; the distressed farmer who has to complain of hard bargains and harder landlords; the equally distressed farmer who has in a great degree only his own want of skill and enterprise to blame for his want of success; the generous landlords who have given all encouragement and aid to their tenants that they were able to afford; the landlords who from rent reductions and unlet lands are unable to draw enough from their estates to pay the mortgages and encumbrances on them, and who have the unsatisfactory and unhappy position of the appearance of wealth without the reality." All these might engage our attention in the Journal, as certainly they demand our attention in the carrying on of the affairs of our country.

How best to meet and mitigate all the various difficulties and hardships attending these several great departments in our national economy should engage the thoughts of all who wish that in spite of everything Britain may still retain her supremacy, and her sons be able to cultivate her soil in the future with such a measure of success as will enable them to live in comfort and happiness. There can be no doubt that we are on the eve of great changes in regard to the land question; let us hope that these changes may be so carried out that every encouragement will be given to those cultivators who are anxious and willing to cultivate the land in a thorough and liberal style, giving to it freely so that they may receive as freely.

This should be encouraged in every way, and such arrangements should be made as would offer every inducement to cultivators to keep their land up to the highest pitch in regard to fertility by the assurance that when they gave it up at any time they would receive a due recompense for having cultivated highly to the end of their occupation.

It is not necessary that I should repeat my ideas in regard to the equal rating of market gardeners pure and simple and gentlemen marketers. I differ from "Utilitarian," and hope that in due time something will be done to place matters on another footing. Regarding "Utilitarian's" remarks about the need of a higher education for farmers and gardeners—he especially mentions the latter, but I think both need it—I may say that much might be done in that direction by many of both classes with very little expense and not much trouble, comparatively speaking. Gardening periodicals are now plentiful and cheap, books on gardening abound, opportunities of seeing other places are easily within reach of the mass of young gardeners, and if there is the will to improve there is little to prevent anyone from attaining to much knowledge which at present often lies hid, simply from want of will and the exercise of study, which would suffice to improve matters greatly if indulged in. As long as many gardeners fail to recognise that they are following a most elaborate and complicated profession, which requires a varied set of attainments if it is to be thoroughly pursued and successfully engaged in, then there will always be such "gardeners" as "Utilitarian" refers to.

In like manner, until farmers come as a body to recognise that farming is capable with profit of being made a science, we shall have men attempting to farm who are utterly devoid of much that is necessary to continued success in farming, and wonder will continue to be expressed that they do not succeed. Then, again, many farmers have at the present time not been able to bring themselves down to the times; they cannot think to deny themselves many things that they could at least want till on a better footing again. But they must ever bear in mind those virgin lands which "Thinker" seems to think I make too much of, also the ever-increasing facilities of transit, and the fact also that their brethren beyond the seas, one in most cases managing to get along by dint of hard work, and the denial of many little luxuries that our distressed agriculturists think they could not dispense with. No one wishes that they should be deprived of these when they can pay their way and face all competition with success, but as long as "distress" is the cry, increased efforts must be combined with increased economy. We must bear ever in mind that the landed interest, the farming interest, and the horticultural interest, cannot be independent of one another; the prosperity of the one means the prosperity of the other, they all hang together, and all who wish success to any one of them, must also wish well for the others.

We must look for wise legislation in the immediate future, we must hope for better times as regards our climate, we must encourage every effort in the way of individual enterprise, and we must weigh all our difficulties and competitions aright, and show our old British pluck by rising superior to them all.

May the difficulties we have to encounter only stimulate us to increased efforts, so that the future will disclose a time of material prosperity which will enable that branch of the fine arts we call horticulture to flourish as freely and generally as any reader of the Journal could desire. —J. T. S.

#### MILDEW.

In reply to the query propounded by "J. L. B.," page 45, with reference to gypsum as a preventive of mildew, I may say that after a dozen years' experience I am fully convinced that it requires both the constituents of that article to effect a cure, not as gypsum, however, but by themselves, with the addition of soft water as follows—Take at the rate of 5 lbs. of flowers of sulphur to 4 lbs. freshly slaked lime, add one quart of water to the pound, boil slowly half an hour, stirring all the while. Allow it to settle, then strain through a thin cloth, and when cold bottle and cork tightly. It will keep for months, and is always

ready for use. For Roses I generally use one bottle to two ordinary large watering pots of rain water, and apply it in the evening, syringing well with clear water early the next morning. Under glass it is better to use a weak solution; for late Peas it is required stronger, and so on, but that is a matter easily determined by the exigencies of the case. It is scarcely necessary to add that it ought to be applied at the first indications of the disease.—H. C. W.



THE NATIONAL AURICULA AND CARNATION SOCIETIES' schedules are now to hand, and announce that the exhibitions for the present year will be held respectively on April 20th and July 27th in the conservatory of the Royal Horticultural Society's Gardens, South Kensington. It is stated that by the terms of the schedule "the Auricula exhibition is for one day only, but it is hoped that many exhibitors will allow their plants to remain during the next day as the integral parts of the great exhibition of Primulaceous plants that will probably prove a bright feature of the next London season." The accounts of both Societies show a small balance, and with a larger accession of members they will be soon placed in a fairly prosperous condition.

— AMONGST the objects of interest at the forthcoming Colonial and Indian Exhibition will be a rare collection of indigenous AUSTRALIAN GRASSES. The specimens are named to correspond with the nomenclature used in the "Flora Australiensis," and there is in addition much practical information about each, derived from general sources.

— THE annual meeting of the NURSERY AND SEED TRADE ASSOCIATION was held on the 25th of January at 25, Old Jewry, E.C. The chair was taken by Mr. Sherwood (of the firm Messrs. Hurst & Sons Houndsditch), and the ninth annual report was read and adopted. It was stated that there had been a proposal to wind up the Association in 1884, but several energetic members being convinced of its usefulness in affording reliable information respecting the stability of persons in trade that could not be otherwise obtained, had assisted in strengthening it, and the result was a favourable balance of over £48. Several toasts were proposed and responded to by Messrs. Sherwood, H. H. Clarke, Harrison of Leicester, William Paul, Hooper, C. Butcher, and Harry J. Veitch, and the meeting altogether proved very satisfactory.

— MESSRS. BARR & SON, King Street, Covent Garden, send us a pan of GALANTHUS ELWESI, which they state "has been out all the winter till the last few days, when put in a cold frame to protect the blossoms from the dashing rain. It was intended for the Floral Committee, but as it does not meet till the 9th inst., I fear the flowers may be past." They were beautiful, healthy examples of this fine Snowdrop, the outer divisions of the perianth being pure white and nearly seven-eighths of an inch in diameter. We have never seen better specimens. We gave a good illustration of G. Elwesi in this Journal March 19th, 1885, p. 227.

— A CORRESPONDENT remarks that in the note on page 65 of last week's issue "the imports of wine into France last year are said to have been over 180,000 gallons. Ought not this to read 180,000,000 gallons?" A reference to the context shows that the latter amount is the correct one.

— WE have to record the death of MR. JOHN SCOTT of MERRIOTT, SOMERSETSHIRE, which occurred on the 22nd ult. He had paid particular attention to pomology, and formed very extensive collections of fruit trees and Conifers in his nursery. He was in his 79th year at the time of his death, and was much respected in the district.

— AT the Meetings and Shows of the ROYAL HORTICULTURAL SOCIETY in the present year Messrs. James Carter & Co., High Holborn, London, will offer the following prizes on the dates named:—May 25th, Cucumbers, three prizes; June 22nd, Melons and Cucumbers, three prizes each. July 13th, for Peas, four prizes. July 27th, for Beans, Lettuces, and Cabbages, three prizes each. Sept. 7th, for Tomatoes, three. Oct. 12th, Onions, three; Cauliflowers, three; and Runner Beans, three prizes each; and on October 26th, Potatoes, four prizes.



— A YOUNG GARDENER writes as follows respecting sowing EARLY PEAS:—"At this season of the year there is much said about sowing Peas in pots and boxes for planting out, while there is a good old method scarcely ever mentioned. It is as follows: Cut some turf about 1 foot long, 4 inches wide, and about 3 inches deep. Afterwards cut a channel in the turf  $1\frac{1}{2}$  inch deep and 2 inches wide, in which to sow the Peas. The turf can then be placed on a Vine border or any other suitable place, and the Peas sown and covered. When the Peas have grown sufficiently to require hardening or planting out they can be removed to the desired place without disturbing the roots, as is the case when sown in pots or boxes."

— THE PORTSMOUTH CHRYSANTHEMUM SOCIETY appears to be in a flourishing state, and its Committee animated with a spirit of enterprise. According to the balance sheet, the first show, that of last year, left a profit of £42 1s. 4d., and an incentive for popular support is provided in the offer of a silver cup value £25 and £5 on the first prize; 70s. for the second, 50s. for the third, and 20s. for the fourth prizes, in a class of thirty-six blooms, half Japanese and half incurved, accorded to the usual conditions stated in the schedule. The Show will be held on November 11th and 12th. Mr. F. Power, 26, Queen Street, Portsea, is the Honorary Secretary.

— INSECTS AND FRUIT TREE CANKER.—The members of the Astwood Bank Amateur Gardeners' Society had under consideration at their last meeting letters which have recently appeared in the gardening press relative to Mr. James Hiam's theory of insects causing canker in fruit trees. Mr. Hiam, enforcing his contention, stated that the mites to which he traced the injury were so small that "it would take at least 40,000 to cover a square inch of surface of bark or wood." The Committee thought it advisable to postpone further consideration for a future meeting.

— AS an example of how LATE DISPLAYS OF CHRYSANTHEMUMS may be had, Mr. H. Lister, gardener to Lord Brooke, Easton Lodge, Dunmow, Essex, sends us a collection of blooms cut from plants that were raised from cuttings struck in July. All were extremely fresh, bright, and most valuable at this time of year. The varieties are Lady Selborne, Madame C. Audiguier, Albert, Beauty, and Comtesse de Beauregarde from July cuttings. The others, grown in the ordinary way, are Grandiflorum, Fanny Bouchardat, Bronze Dragon, and Boule d'Or, giving a good diversity of colours and blooms of convenient size for cutting.

— MR. R. OWEN, Maidenhead, also sends some BLOOMS OF CHRYSANTHEMUMS Nuit d'Automne, Belle Paule, Mrs. Mahood, and Boule de Neige, all very fine, and remarks, "I send you these to show how long they are lasting in flower this season. Besides those sent I have Fair Maid of Guernsey, Ethel, Sarnia, Colibri, Meg Merilees, &c. Last week I cut some splendid blooms of M. Henri Jacotot, a rather early Japanese variety. The blooms sent are from plants grown as ordinary bush plants for decoration and cutting purposes."

— PRESERVING TIFFANY.—A correspondent, "D," asks if any of our readers can tell him how to make tiffany decay-proof otherwise than by boiled oil. This latter process does not answer, as the tiffany gets torn by the wind, being very brittle when oiled. He wants the tiffany to remain soft and flexible.

— WAKEFIELD PAXTON SOCIETY.—The subject for discussion by the members of this Society on Saturday last by being popular and simple was none the less interesting, "Mignonette for Pot Culture," being the title of Mr. R. Hall's paper. Mr. Hall, a well-known gardener in Sheffield, treated his subject so well that the favour in which this sweet-scented flower is generally held was considerably increased before the close of the meeting, as a great amount of information not generally known was elucidated both in the essay and the discussion which followed. The thanks of the members were heartily accorded to Mr. Hall for his essay.

— A GARDENER of great experience writes:—"I have read with unbounded pleasure 'A. L. G.'s' remarks on the ANALYSIS OF SOIL. This makes us gardeners put on the studying cap; in fact, it tells us what few of us know, and I feel sure that I speak the sentiments of the great majority of your readers when I thank him heartily. If 'A. L. G.' will oblige me with his address I should esteem it a great favour." It would perhaps be well for our correspondent to indicate any further information he may need, and we have no doubt "A. L. G."

will supply it through the Journal, when others will share in the benefit of his teaching.

— GARDENING APPOINTMENT.—Mr. S. Taylor, late of Acacia and Malsis Hall Gardens, Yorkshire, has been appointed gardener to Arthur Hodgson, Esq., Clopton House, Stratford-on-Avon.

— "A. M. B." writes:—"I am greatly obliged by 'A. M.'s' friendly and most useful suggestion as to PLANTS FOR HERBACEOUS BORDER, and interested in the mention of *Trillium grandiflorum*, as I was just about to query whether *Trillium erythrocarpum* (figured on page 50 of 'Juliana Horatio Ewing and Her Books'), described as a North American plant, had been found to succeed under English cultivation. On Tuesday, the 27th January, showed the snow gone except here and there. The air was clear; the sunshine bright. The 28th dull and gloomy, very cold. Dull, rain, and cold to-day (29th). At 1 o'clock snowed heavily, continues to snow, and inclined to thaw."

— ACCORDING to the report for the past year of the Superintendent of the ROYAL BOTANIC GARDEN AT CALCUTTA, further attempts to introduce into Bengal the kind of Plantain (*Musa textilis*) from which Manilla hemp is derived have proved failures owing to the low temperature of the cold weather; but the plant (*Sansevieria zeylanica*) from which bow-string hemp is obtained grows very well. The Japan Paper Mulberry, which has lately been introduced, has also been a success. Efforts are being made to introduce other plants of economic value, the principal being the Coca plant, from which the important alkaloid cocaine is derived. The additions to the herbarium during the year appear to have been unusually large and comprehensive. As an example of the public utility of the Garden, it may be mentioned that 20,433 living plants were distributed to public institutions in India, while those sent abroad were proportionally numerous. In the same way 2979 packets of seeds were sent out. The report of the Lloyd Botanic Garden in Darjeeling is also included in the paper, which concludes with the usual statistical returns.

— THE PAXTON SOCIETY, HUDDERSFIELD, decided some short time since to vary the fortnightly meetings with papers read by gentlemen who are known to excel in some particular branch of horticulture, and to invite gardeners, amateurs, and lovers of flowers to attend. The first of these meetings was held on Jan. 30th, and proved very successful. Upwards of sixty members and friends were present. The President, G. W. Rhodes, Esq., presided. Mr. W. Swan of Howick House, Preston, kindly gave an essay on the native habitats and culture of Orchids. The essayist described most minutely the various genera, districts, temperature, and altitude in which Orchids are found; also the heavy rainfall and extreme heat the various sorts are exposed to, concluding by advising low span-roofed houses as best for all the sections, varying according to the size of the plants. Ventilating, shading, and potting materials were also fully described; in fact, the paper was quite exhaustive and very interesting. A hearty vote of thanks to the above gentleman and Chairman brought a very pleasant evening to a close. The next paper to be read, on February 13th, is by Mr. C. Smedley—subject, the "Amaryllis." The Huddersfield Chrysanthemum shows were inaugurated by the Paxton Society, and are under its management. We are glad to record these and similar instances of horticultural activity in various parts of the country; all gardeners and gardening improvement societies having our best wishes for their success.

— REFERRING to the EXPORT OF FRUIT FROM TASMANIA, a local paper says:—"We have seen Dr. Benjafield's men gathering and putting up 200 quarts of Hobart Strawberries for the Sydney market. The American screw-down bottles were brought on the ground in boxes which held from one to two dozen each, and through the middle of the box was a board with holes in it, so that each bottle fitted into one of these apertures. As these boxes were old packing cases, they cost but very little, and are very effective. Before filling each bottle is thoroughly fumigated with sulphur fumes, which was effected by a very simple contrivance. A flower saucer was filled with sulphur and lit, then the flower pot was turned over it. The fumes soon poured out of the hole in the top in abundance, and the open mouth of each bottle was stood over it for a few seconds until the bottle was full. Each picker now marched off to a bed with a box of these bottles, which, as they were filled with fruit, were put back into their holes, and the case, when filled, brought back to the light spring waggon, which took them to the boat. But before starting each bottle was surrounded with green stuff, Cabbage leaves, &c., to keep



it cool during the voyage. The fruit was gathered not quite ripe, very ripe or damaged fruit being rejected. They were the ordinary Trollope Strawberry, but Dr. Benjafield tells us there are firmer-fleshed Strawberries than these which will carry much better, plants of which he hopes to obtain. The British Queen is one of these, but here they are not yet ripe. As the last lot sent fetched 1s. 6d. per quart, he hopes these will fetch more, as they are riper and look better. At 1s. a quart clear a good acre will bring in from £250 to £300. If these experiments prove a success and the demand in Sydney is unlimited, we cannot see why a good thing should not be made of it; and if, as appears probable, Raspberries, Currants, Peaches, and all soft fruits can be thus carried much more easily than Strawberries, it in the future will be a splendid thing for our fruit-growers."

— THE Secretary of the Illinois State Horticultural Society makes known some strange facts in regard to the ORCHARDS OF ILLINOIS, UNITED STATES. In the northern and central parts of the State a large proportion of the Apple, Pear, Peach, and Cherry trees are dead or in a dying condition. Of Apple trees this proportion is one-half; of Pear trees it is 65 per cent.; of Peach nearly 90 per cent.; and of Cherry trees over 50 per cent. In the southern part of the State the case is not so bad, though even there nearly one-half of the Peach trees are dead or dying; 15 per cent. of the Apple trees, 18 per cent. of the Pears, and 27 per cent. of the Cherry trees are ruined. A large part of the remaining trees are also in an unsatisfactory condition. The varieties of Apples in the northern and central parts of the State that have stood the severe tests of the late winters are as follows:—Duchess of Oldenburg, Snow Red Astrachan, Willow Twig, Wealthy, Whitney No. 20, Yellow Bellflower, Tetofsky, Tallman Sweeting, Westfield Seek-no-further, Sops of Wine, Salome, Minkler, Maiden's Blush, Roman Stem, and Grimes' Golden; the last four being reported only for the central and not for the northern part of the State. These few hardy varieties will now be in demand for future planting. It would now be interesting to know to what extent shelter belts have been employed for orchards in Illinois, and precisely what protection they have afforded the trees.

— AN Orchid grower writes:—"Many fail to successfully cultivate ONCIDIUM TIGRINUM, especially when it is placed at the warmest end of the Odontoglossum house. In this position it is generally kept too moist during the winter, or that period of the year when it should receive a season of complete rest. If watered during the dreary days of winter on the same principle as Odontoglossums, it frequently decreases in size until it finally succumbs. From the time its deliciously fragrant flowers are produced this Oncidium should be kept dry at its roots; in fact, no more water should be given it than sufficient to prevent its large fleshy pseudo-bulbs from shrivelling. If this is done it will rest in the moist atmosphere of the Odontoglossum house, and will grow with vigour, increasing in size and strength annually. This variety is worth every care and attention, as it flowers during winter, and in colour is totally distinct from Odontoglossums flowering at that period, and therefore very effective when arranged amongst them."

— AN American paper announces the institution of the MISSOURI BOTANICAL GARDENS as follows:—"The eminently public-spirited citizen of St. Louis, Mr. Henry Shaw, who proposes to give his celebrated Gardens to the city on his decease for the enjoyment and instruction of the people for ever, has not waited for the event of his departure to inaugurate his generous gift. He has already founded a school of botany, endowing it with real estate which even now produces an income of over 5000 dollars a year. Prof. Wm. Trelease, an eminent botanist among the younger class of men, has been placed in charge, and inaugurated on the 6th of November. It has been made a department of Washington University. The whole movement so far seems to indicate a bright future, and must be highly gratifying to Mr. Shaw, the generous promoter of the measure. The Engelmann Herbarium and other famous material will, it is hoped, go to the charge of this new department of the University."

— THE same paper states that the formation of a BOTANICAL GARDEN AT MONTREAL has been under discussion since 1863. Since Prof. Penhallow has been Professor of Botany in the University the project has taken shape and seems now entirely successful. It embraces 77 acres; the arboretum takes of this 40 acres, 5 acres will go for aquatics and similar plants. The plant houses are to cover 216 feet by 90. There will also be lecture rooms, library, and an economic museum. The city furnishes the ground, leases it to the Garde Associa-

tion, and the citizens find the money. The Horticultural Society is its chief supporter. The Dominion Government, however, appropriated 1,000,000 dollars to put the garden in a good preliminary condition. The prospects at present indicate that this garden will be one of the most successful in America.

### NOTES ON GRAPES.

THE Journal lately has been very rich in excellent advice and hints from noted Grape-growers, and I should like to jot down a few remarks suggested after reading these notes on Grapes. In conversation recently with a gentleman who, while not professing to be a Grape-grower, is very much interested in the subject, and is at the same time a very shrewd, practical, and scientific farmer, I gave it as my firm conviction that all Grapes do not need the same food, which he questioned, but correctly observed that some might require more than others. Before proceeding farther I would ask in the case of the splendid Muscats at Longleat, why should not the Alicantes, or rather the Blacks, be equally good in berry? In the exhibits at South Kensington I first noted the great difference in the size of the berry, and then when I saw them at home I noted the difference still more. Of course the bunches were very large, but undoubtedly there was a want of size in the berries of the black varieties. Now, presuming these were treated in the same manner in feeding, what should cause the difference? In other cultural details there might be a little variation, such as in the amount of heat, water, and ventilation; yet the black varieties, being healthy and in good condition, I conclude that the Muscats had all they required, and the Alicantes did not. Lady Downe's were very good. Mr. Taylor at Bath cannot fail to note the superiority of his Gros Colman and Alicante both in berry and finish to his Muscat, all grown in the same house, and I believe Vines of the same age. How is this? Amongst my own Vines perhaps the only one that gives me satisfaction is the Gros Colman; this stands any amount of feeding, with the result that the berries are large, and when only fairly cropped are of good colour. Alicante, on the other hand, disappoints me. Certainly the colour is good, but greater size of berries is wanted. Mr. Taylor's Alicantes had decidedly the best berries of any I saw last year, though the bunches were not large. Lady Downe's pleases me in the berries, but not in the bunch.

Comparing the three varieties of Grapes I have named, how do they stand for keeping, which after all is the test of good growth? First for sound noble appearance is the Gros Colman. Then there is but little to choose between Alicante and Lady Downe's. I prefer Alicante now; the only fault—and on this hangs a tale—is the stoning. In Lady Downe's I can pick out plenty of berries with five stones, this can readily be told by the markings on the berries. The great objection I find to this variety is that unless the berries are stoned they will shrivel and decay rapidly. Alicante is very deficient in stoning, and this, too, received the same treatment as Lady Downe's. I now come to the conclusion that Alicante must have extra food, more so, I believe, than the others named, but whether it is to take the same form I cannot say. The chief reason for not giving extra food to Alicante is the great strength of the laterals and the large foliage. I should be afraid of using potash for fear of not ripening the wood, as I use but little fire.

Stoning is entirely under the influence of the grower, as I have proved. The Madresfield Court berries have as many as six stones, where in the same Vine the year before they were very deficient, and this result is obtained by liming and root-feeding. Lime is an all-important factor, being so simple that its value is either ignored or doubted. In large borders the absence of lime is quickly discovered. In small or confined spaces it is not so soon found out, because I suspect the latter are better looked after perhaps both in water and feeding. Liquid manure and other modes of feeding delay the discovery of want of lime. I can point out one very narrow border, in fact a Cucumber bed, now used for Alicante and Lady Downe's, which I know is deficient of lime; yet this season, with extra attention in other ways, the Vines produced the largest berries I ever saw, and at the same time some of the smallest berries. What appears to be wanted in Vines generally is a good feeding of lime in spring or summer as required, and then, probably to make doubly sure, apply it again in the autumn. In my own experience I have had borders naturally full of lime, and in this case of course supplied other food.

In conclusion, I have not the slightest doubt that it is the best grown Grape that keeps the best, and to grow it to perfection very close observation and application are required. In making Vine borders, provided the mechanical condition is right, all that the Vine needs can be given as required. The simpler the compost—in fact I used no manure—the better for the well-doing of the Vine. —STEPHEN CASTLE, *West Lynn*.

### WARSCIEWICZELLA VELATA.

MOST of the Zygopetalums are generally cultivated even where Orchid collections are small, and some of them, such as *Z. Mackayi*, are much appreciated for their useful free-flowering habit. Very closely allied to them, but not nearly so well known, are the Warscewiczellas, of which a few species have been described and introduced, but by some authorities they have been all referred to the genus Zygopetalum. There are several other genera also that have occasioned much discussion, of which *Bollea*, *Huntleya*, and *Pescatorea* may be named as examples, but as certain minor distinctions have been observed in them they are, with the exception of *Huntleya*, given separate rank now.



The Warscewiczellas are natives of Central America, but though from tropical regions they are more frequently injured by excessive heat than by any other cause, unless it be undue dryness. Like most Orchids that have no pseudo-bulbs, they do not need such a strongly marked season of rest as those which have stores of nutriment to support them, consequently a moderate supply of water is required at all times. In other respects they may be treated the same as *Zygopetalums*, growing them in pots in a compost of good peat and sphagnum moss, with adequate drainage to prevent any approach to stagnation. This is the simple treatment adopted by such experienced Orchid growers as Mr. B. S. Williams, and it has been found very successful. One of the best of the species is *W. velata*, represented in the woodcut (fig. 16) prepared from a sketch of a handsome well-grown plant at the Orchid Conference last year. It produces its flowers abundantly, clustering amongst the leaves or scarcely rising above them; sepals and petals white or tinged with yellow, the lip similar in the ground colour, but streaked and stained with purplish crimson, lighter in the throat. Though not so showy as some other Orchids it is pretty, and the flowers have a very agreeable fragrance. *Warscewiczella aromatica*, with white and purple highly fragrant flowers, is another useful species; *W. Wailesiana* creamy white with a purplish lip, *W. Wendlandi* white blotched with purple in the lip, and *W. candida*, white, are other species that are worthy of a place in large collections of Orchids.

#### GARDENING IN CALIFORNIA.

THE following extracts from a letter just received from "the Golden State" may perhaps interest some of your numerous readers in this



Fig. 16.—WARSCEWICZELLA VELATA.

country. They are written by a friend who is head gardener to a gentleman there.—W. H. DIVERS, *Ketton Hall*.

"We had a very dry summer. For five months there was not a drop of rain, and hot winds were blowing every day. We had to water all plants with a hose, as we could not keep them moist enough, and we are now (Jan. 6th) getting very bright days and frosty nights. We have not a good thermometer outside, but I should judge the frost lately to have been from 7° to 10°. In the wet season it does not rain—it pours—not for a few hours, but for days, and sometimes a week, without stopping. Before the rain comes everything not irrigated is parched up. After a few days' rain the fields and roadsides suddenly turn green again.

"Gardeners are not kept to look at here. We have to work hard, and have great difficulties to contend with. A gardener does not hold the position here that he does at home, and masters as a rule do not treat their servants well. The general style is, 'How much do I owe you? Here's your money. I do not require your services any longer.' — is gardener in a small place near here; he gets about £13 per month, and his board extra for looking after the house during absence of the family. Everything here is very expensive, especially clothes. Doctors charge £1 per visit. Meat is the only thing that is cheaper than at home.

"I see by the papers things are very unsettled at home. "England is fast becoming a democratic country. They talk of the freedom of this country. I have not seen much of it yet, and on the whole a working man is better in England if he only gets a living. That is all he does here; but there is one advantage here—he can buy a plot of land, build a house, and have a home of his own; but a man is better off in England on half the money.

If you hear anyone speak of coming to this country advise them not to come. Hundreds, I might say thousands, are seeking work."

#### DEATH OF MR. JOHN ROBSON.

It is with much regret that we have to record the death of one of the oldest contributors to these pages—Mr. John Robson, who was for many years gardener to the late Earl of Cornwallis and Viscountess Holmesdale at Linton Park, Maidstone. Mr. Robson was established at Linton Park when he was placed on the staff of the *Cottage Gardener* in 1851, and was an indefatigable contributor to its pages and the *Journal of Horticulture* till 1875, when he relinquished his charge at Linton, a substantial pension being granted to him by Lady Holmesdale in consideration of his long and faithful services, but this pension ceased at her ladyship's death. On Mr. Robson's health somewhat improving he resumed his pen, and until within a comparatively recent period sent an occasional article for insertion. He was a regular contributor during a period of thirty years, and no sounder articles on practical gardening have been published than those in which he recorded his experience. He was thoroughly competent as well as most genial and obliging, one of his greatest pleasures being to assist all who needed advice on gardening matters. On this it will be fitting for those to speak who knew him best.

An opportunity was afforded in 1876, for the termination of Mr. Robson's labours at Linton Park was felt to be an appropriate time to recognise the merits of one who had done so much for gardening both by his work and pen. A committee was therefore formed and steps taken to carry out the project of a testimonial, and the labours

of that committee closed in a pleasant manner on the evening of the 29th October in that year in the village inn at Linton. At a social meal there spread J. Philpott, Esq., as a principal promoter, presided, and after making a brief address vacated the chair in favour of J. Neve, Esq. (who was for many years Steward at Linton), and who was deputed to ask Mr. Robson's acceptance of the offerings of his friends. After duly honouring the toast of the Queen, Mr. Neve uncovered a handsome silver inkstand, and a purse containing £126, with a list of 160 subscribers, and presented them to Mr. Robson. In doing this Mr. Neve remarked that after having had close business connections with Mr. Robson for many years he desired to bear public testimony to his worth and ability. Not only as a gardener, but as an accountant and assistant Mr. Robson had rendered him invaluable aid, while his character for integrity, industry, and urbanity had won him the approbation of all around him. Mr. Neve dwelt with emphasis on the generosity of Mr. Robson's disposition in ever seeking to impart knowledge and in being constantly ready to render assistance to all needing a helping hand, and his matured judgment had been of the greatest benefit, not only to the district, but also, through the press, to the general community.

Mr. Robson's acceptance of the gift well represented his character as a thoughtful generous-minded man.

When the applause had subsided, Mr. Robson, in the midst of an ovation almost overwhelming, in a modest speech and tremulous accents, accepted this one more mark of recognition which had been kindly rendered to him for "trying to do his duty." When he first became acquainted with the object of the committee his first desire was to stop



any further proceedings, but on further consideration he thought it would not be right to others for him to do so; therefore as an encouragement to others to labour for a reward, and also as his acceptance of the gifts of his friends might possibly enable him to better help some others who might be afflicted as he had been, he received with sincere thanks the kindness of those who had considered him worthy of their notice and regard.

On the inkstand was the inscription—"Presented to John Robson by his neighbours and friends as a token of their regard and esteem.—Linton, October 1st, 1876."

The Secretary of the fund spoke of the many flattering letters he had received in regard to Mr. Robson; Mr. Bradley, Preston Hall, and Mr. Goddard, Hunton Court, alluded to his well-proved friendship to them and to all gardeners to whom he could be of service; and the representative of the *Journal of Horticulture* acknowledged the valuable aid rendered by Mr. Robson to horticultural literature for a period extending over a quarter of a century.

Mr. Robson had already been the recipient of a gold watch and chain for his services in connection with the Maidstone Gardeners' Society, and he was held in the greatest esteem by all classes in the neighbourhood in which he so long resided. He was born at Lamesley, Gateshead, on March 25th, 1812, and died at Hunton, near Maidstone, February 1st, 1886.

### GROS COLMAN VINE.

WHILE the topic on Gros Colman Vine is yet fresh, I thought I should like to relate a circumstance which I witnessed two or three seasons ago. Thrips appeared in a viney in which Gros Colman was planted with Lady Downe's, Mrs. Pince, Alicante, and Black Hamburg. In order to check the ravages of this pest the usual remedy was applied—viz., fumigating with tobacco paper. The house was filled with smoke in the evening as the sun was going down. The next morning Gros Colman presented symptoms of distress, the edges of the leaves were curled up, and looked far from being right, while the other Vines were as fresh and healthy as ever. As the day wore on and the sun shone on the house matters became worse. The leaves of the Vine of Gros Colman appeared as though they were scorched. Shade was put on, but it did no good. Many of the leaves were cut off as useless. Perhaps some of your able correspondents can tell us something more of this matter. I may add this Vine border received large supplies of liquid manure.—FAIRPLAY.

I HAVE read with interest the remarks in your columns respecting the treatment of Gros Colman Vine, and I will briefly describe my experience. Two years last spring I planted a house with Gros Colman. I found that when they had made shoots from 6 inches to 1 foot long they began to be scorched, and without exception had to make new leads. I then had recourse to shading by laying on linseed oil with which a very small portion of white lead had been mixed. The following spring they were affected in a similar manner, although the frosted glass afforded a certain amount of shade. In the autumn of the same year I had some holes made in the front wall to allow of the roots passing outside, as they were planted inside in narrow border. I then made an outside border. At one end was a washtub for catching roof water, which I also utilised for liquid manure, principally made from fowls' manure. Last winter this tub frequently overflowed with heavy rains. As a consequence that end of the border received an extra share of moisture. The fertilising properties of the manure it contained had a very marked effect on the two nearest Vines. They grew away from the first without scorching, have made such canes as are not seen every day, and have ripened splendidly; the other Vines all had to make second shoots as usual. My experience leads me to think that Gros Colman requires an extra amount of moisture, also plenty of liquid manure. Although I should not recommend shading to be dispensed with, at least till the Vines have got strong hold of the border, I have no doubt a little extra attention, as giving air early and warming the pipes, would repay the grower. Gros Colman seems to exude moisture more than any Vine I know. I have generally gone over them every morning two or three times with a stick to knock off the wet. I have found in my general practice that potash is a most useful ingredient for Vines, having used it very extensively for several years, but I have not used any in this instance, not being able to procure it very readily here. I have no doubt it would prove useful to even Gros Colmans.—R. SOWERBY, JUN.

### THE STAGES IN PLANT HOUSES.

WITH the new season no doubt there are many who intend to erect new glass houses, so that my remarks may be worth a place in our instructive Journal. Some houses have been erected here lately, one of them being a plant house (lean-to), having a stage in front and against the back wall. Under the front stage four rows of 4-inch pipes run the entire length of the house, the stage being an open wooden one and about 1 foot above the pipes. Consequently the plants are very difficult to manage, as the heat coming up between the open boards dries them so quickly that the labour in keeping them moist enough is very great. For Calceolarias, Cinerarias, and many other plants such a stage is ruinous, when the heat has to be maintained to keep out sharp frost as we have had to do lately. Under such conditions plants cannot be made very satisfactory, for they lose their strength and grow weakly and sickly, and many are useless. If instead of an open wooden stage a stage of blue slate had been made, resting on an iron frame, the legs of the frame

on the pavement edge, as I have seen elsewhere, the dry heat from the hot-water pipes would be prevented from coming direct to the plants and would be a great gain to them as well as to the gardener. The temperature would be more equal, they would grow strongly, and give entire satisfaction if other points were attended to.

Houses are sometimes erected without the gardener being consulted in the matter, which I think is a mistake, for as a rule gardeners are intelligent men and their opinions are often valuable. I would commend those intending to build plant houses to form stages, if of open wood-work, well elevated above the pipes. In doing this it will be necessary to carry up the wall to the proper height.—C. J.

### GARDENERS' CHRYSANTHEMUMS.

IN the many articles which appear on Chrysanthemums, their merits for exhibition either for prizes at a show or for home display in the greenhouse are almost always strictly kept in view. For many country gardens exhibition culture is a delusion and does not pay, and many of the sorts which are necessary to the producers of large flowers are worthless to those who want and must have a good supply of flowers. We like to have a good supply of Chrysanthemums from October to February. About the middle of the former month they, as a rule, begin to be very useful, and up to the beginning of February we can always find good use for them. We have had them as late as May, but they were grown more in the way of showing what can be done than for any particular use. Large blooms are by no means despised, as for some purposes they are valuable, just as large double Dahlias and Richardias are appreciated, but as a rule medium-sized flowers are best. Varieties of the Mrs. Rundle class are simply invaluable when compared with those of which Queen of England is the type. The culture of the Chrysanthemum is in all respects so simple that it is of no importance to enlarge on it here. The main points to be observed are these: To choose short strong root cuttings, to grow them cool in all cases, to pot firmly, and rather under-pot than err on the side of having too large pots; abundance of water is also necessary, and good feeding is of much importance. In June the taller varieties are cut down to the moderately hardened wood. Dwarf sorts are not cut down. The grower for usefulness does not require to disbud his plants in the orthodox manner. Should he do so he will reap a harvest of disappointment. A beautiful shaded old variety, General Bainbridge, gave me the first lesson as to how Chrysanthemums should be grown to yield abundant flowers. This variety had been disbudded and produced its three flowers to each stem, but while these were passing through their several stages of development and final decay, several growths were made down the main stems, each of which produced a neat little flower. After that we did not trouble much about disbudding varieties which were inclined to be prolific of stem flowers.

Of course the varieties grown are of the greatest importance in securing the end in view—plenty of flowers, and a long-continued period of usefulness. The number of sorts grown must be strictly limited, and a larger or smaller number of each sort cultivated in order to meet the demand. The varieties we grow in greatest number are Madame Desgrange, the plants of which are so managed as to yield a supply for the first five or six weeks of the season. G. Wermig and La Viergo will in future be grown to come in with this kind. Of Mrs. Cullingford we shall also grow a few plants. The best of the main group are Mrs. G. Rundle, Mrs. Dixon, and Mr. G. Glenney. When left to grow naturally the main centre flower on each shoot has two smaller buds close to it, which open at the same time, while we have often had a dozen good side blooms from each upper growth. The plants require very good treatment in order to bring these to a fair size. James Salter and Lady Selborne are also favourites, the latter coming in quite as early as the Rundles, and lasting till Christmas or later. Each stem of these produces four good blooms, or twelve to one main growth, besides smaller blooms, which are produced later. Others of the main group is the variety just named—General Bainbridge. This is not only a free-blooming variety, but the colour of the flower is very taking with ladies, and, indeed, for home use it is most valuable. *Jardia des Plantes*, though not floriferous, is of such a beautiful yellow tint that it is indispensable. *Beauté du Nord* is very good, as also are *La Nympe*, *Hiver Fleuri*, *Tokio*, *Insigne*, *Elaine* (the best in cultivation). *Gluck* is a fine yellow *Ancome*, *Princess Louise* very taking, *Say Mayant* (?) a good late form. Of *Ancome Pompons*, *Antonius*, *Madame Montels*, *Cedo Nulli* and its yellow variety, and *Calliope* are all useful. Ordinary *Pompons* are not of any value. Good late varieties include the old *Julie Lagravère*, *Fair Maid of Guernsey*, *Rex Rubrorum*, a very good sort, *Madame C. Carey*. With exception of the last named these are flowering freely just now; the other is later. We have also *Mons. Astorg* very good at present. *Peter the Great* is sometimes fine, but not always. *Fulgore*, *Diamond*, and *J. Delaux* are grown for colour of flower. *Cullingfordii* has been disappointing, and so has *Salteri*, but better things may follow another season.

A little heat works wonders in bringing on a batch of Chrysanthemums up to time; indeed we find fire heat of great value in the case of late varieties, increasing as it does the number of flowers which open. It may be added that we have no dislike to other Chrysanthemums, and, in fact, grow a large collection, but the above named we grow in quantities to meet a demand, just as we do *Miss Jolliffe* *Carnation* and certain *Geraniums* for this season.

Since penning the above an opportunity has occurred of inspecting a market growers' collection, and the results of a simple and cheap method of culture were so patent and satisfactory that an extra paragraph may be devoted to describing the treatment. The structure is an extremely



light home-made one of the cheapest character consistent with strength. The plants were all growing in the natural soil—apparently a poor sand. There had been no disbudding of the plants, but the removal of each central bloom as it was ready relieved the plant so far as to allow the side buds the full benefit of the foraging capacities of the roots. Many of these side blooms were in the third week of January 5 and 6 inches across, with the florets broad and leathery in texture. The blooms have brought wholesale to customers from the beginning of the season right on till now a uniform price of 3s. per dozen; to non-customers for odd orders a higher price has been charged. The chief sorts grown are Lady Selborne, Elaine, Lady Margaret, and in future years the Rundle varieties and Belle Blonde (?), a late incurved sort, is to be grown in numbers.

The system of producing the plants is most simple. A portion of one of the low heated frames was set apart in which a bed of soil is placed, and there we found cuttings dibbled in like *Calceolarias*, and there they remain until they are of good size, when they are lifted and potted. At the time for housing they are turned out of the pots and planted in the border of the house, where they open their flowers. To fill the place of the *Chrysanthemums* during the summer months thousands of seedling Tomatoes are coming on in a stove pit. These are to be grown as single-stemmed upright cordons, a system which we found several years ago to be a very good one.—B.

### KEEPING APPLES.

I CAN fully corroborate all that "B." and "Thinker" have said about keeping Apples in heaps as well as in single layers. For want of room I have been obliged to adopt that mode of storing them, and have found them keep well with very little attention; of course they were all carefully hand-picked.

I should like to say a word in praise of the Journal. It used to be a favourite of mine, but having for some years another paper found me, I had not seen it; now, having to find my own again, I have returned to the old love with pleasure and profit. I wish you much prosperity.—BUSHEY HOUSE.

### EMIGRATION TO QUEENSLAND.

IN answer to "A. B. C." I offer extracts from letters I received from a brother who emigrated last spring. He paid his own passage—but he should have accepted the assisted passage, it would have left him £10 more at the other end, and he had the same treatment as the assisted passengers. He was a journeyman gardener receiving 18s. per week, without lodgings. He is nineteen years of age, of spare wiry frame and dark complexion, a teetotaler and non-smoker—the very lad for a nearly tropical climate. I had one letter soon after landing, in which he says, "I have got work with a small farmer, wages 15s. per week and 'tucker,'—that is, 10 lbs. meat, 8 lbs. of flour, 1 lb. of sugar,  $\frac{1}{4}$  lb. of tea. My bedroom is an old shed, and my bed a few old sacks." And that is what one would have to hear from year's end to year's end. The recipe for damper is, "Mix up your flour and water, with a piece of baking powder, into a flat cake, put it in the ashes of your fire and cover it over; when you think it is done fish it out, give it a crack to knock the dust off, and it's ready to eat."

The second letter says, "I left my cockatoo farmer as soon as my time was up (it was a three-months engagement). Then I did a fortnight's work for a man where one of my shipmates is working; and now I have got work in the Botanic Gardens. I am to have £7 10s. a month to start, and £8 10s. if I suit. I live on the place; there are four employed besides the Curator. We start at seven in the morning and leave off at five in the afternoon, with an hour for breakfast and an hour for dinner, and leave off at one on Saturday. Every third week I stay in the gardens on Saturday and Sunday afternoons. Peaches, Grapes, and Oranges are plentiful. Germans are here in force; they use their Grapes for making wine. All the cockatoo farmers are Irish or German; there is not enough money to be made to suit an Englishman's constitution. Anyone who is fond of life had better not come here; it is very dull. A spree in Queensland is to go and sit in a "pub" and get drunk and remain so till all the money is spent, and then go and earn some more. I was lucky to get this job, as work is not over-plentiful just now, and one has to do what one can get, and not what one would like." From which I gather that a lad of sound constitution, abstemious habits, and one who is prepared to do work he would despise in England, will eventually get such wages that more money can be saved than he would earn at home. But for a married man who is earning a living in England, Queensland is no place to go unless an appointment is secured before starting.—A. L. G.

### THE PRIMULA CONFERENCE.

THE revised programme of this event is now issued, and though it has been previously referred to, we again notice it, as some alterations have been made. The exhibition will be held in the conservatory of the Royal Horticultural Society at South Kensington on April 20th and 21st in conjunction with the National Auricula Society's Show. The meeting for the reading of papers and discussion will be on Wednesday, April 21st.

PROVISIONAL PROGRAMME OF THE EXHIBITION.—Class 1, the Auricula; class 2, the Primrose and Polyanthus (special schedules for garden varieties in these two classes will be furnished by the National Auricula Society); class 3, varieties of *Primula Sieboldi*; class 4, varieties of *Primula sinensis*; class 5, European species, varieties and hybrids of

the genus *Primula*; class 6, Himalayan and other Asiatic varieties and hybrids of the genus *Primula*; class 7, Chinese and Japanese varieties and hybrids of the genus *Primula*; class 8, American, varieties and hybrids of the genus *Primula*; class 9, plants allied to the genus *Primula*, such as *Cyclamen*, *Dodecatheon*, *Androsace*, *Cortusa*, &c. (of these species only, not garden varieties, will be admitted); class 10, Primulaceous plants grown to illustrate special modes of culture, &c.; class 11, specimens, models, and drawings illustrative of the structure and mode of growth of Primulaceous plants.

PROVISIONAL PROGRAMME OF THE CONFERENCE.—1, "The Origin and History of the Florists' Auricula." Introductory paper by Mr. Shirley Hibberd. 2, "In what Direction should Efforts be Made with the View of Improving the Florists' Flowers belonging to the genus *Primula*?" Introductory paper by Samuel Barlow, Esq., J.P. 3, "The Nomenclature of Alpine Primulas." Introductory paper by Mr. J. G. Baker. 4, "Culture of Hardy Primulas." Introductory paper by Dr. Maxwell T. Masters on root structure, and mode of growth, as affording indications of the probable best culture.

APPENDIX.—In order to assist in the arrangement of the European Primulas at the Exhibition, Mr. J. G. Baker, F.R.S., has kindly drawn up for the Committee the following provisional list of European Primulas, classified in three groups, viz.:—1, Well-marked species distinguished from one another by broad clear characters; 2, Sub-species or varieties distinguished from the types under which they are placed by slight characters; 3, Probable hybrid types which have received names as if they were species.

The list may serve as a preliminary basis for the discussion at the Conference. Meanwhile the Committee suggest that exhibitors, in giving names to the plants which they exhibit, should follow, as far as they feel able to do so, the nomenclature and arrangement thus suggested by Mr. Baker. The names which are printed in italics are synonyms:—

Section 1, *Primulastrum*.—Young leaves revolute, not mealy beneath, calyx strongly ribbed. 1, *vulgaris*, Huds.; *grandiflora*, Lam.; *acaulis*, Jacq.—*Silthorpii*, Reich.; *amæna*, Hort. 2, *elatior*, Jacq.—*Pallasii*, Lehm.—*Perreiniana*, Flügge.—*carpathica*, Fuss. 3, *officinalis*, Scop.; *veris*, Linn.—*macrocalyx*, Bunge.—*suaveolens*, Bert.—*Columnæ*, Ten. *Tommasin*, G. & G.

Section 2, *Aleuritia*.—Young leaves revolute, mealy beneath. Flowers small, with a long corolla-tube. 4, *farinosa*, Linn.—*scotica*, Hook.—*Warei*, Stein.—*stricta*, Hornem.—*frondosa*, Janka. 5, *longiflora*, All. 6, *sibirica*, Jacq.—*finmarchica*, Jacq.; *norvegica*, Retz.

Section 3, *Auriculastrum*.—Young leaves involute. Calyx short. 7, *Auricula*, Linn.—*Balbisii*, Lehm.—*ciliata*, Moretti.—*dolomitica*, Hort.—*Obristii*, Stein.—*similis*, Stein. 8, *Palinuri*, Petag. 9, *carniolica*, Jacq.; *integrifolia*, Scop.—*multiceps*, Frey.—*Freyeri*, Hoppe. 10, *marginata*, Curt.; *crenata*, Lam. 11, *viscosa*, Vill.—*pedemontana*, Thom.—*commutata*, Schott.—*latifolia*, Lap.—*graveolens*, Heget.—*ciliata*, Schrank.—*confinis*, Schott.—*villosa*, Wulf.—*hirsuta*, All.—*Berninæ*, Kern. 12, *daonensis*, Leyb.—*oenensis*, Thom.—*Stelviana*, Vulp.—*cadinensis*, Hort.

Section 4, *Arthritica*.—Young leaves involute. Calyx long. 13, *calycina*, Duby.; *glaucescens*, Morett. 14, *spectabilis*, Tratt. *Polliniana*, Morett.—*Kitaibeliana*, Schott. 15, *Wulfeniana*, Schott.—*longibarda*, Hort. 16, *Clusiana*, Tausch.—*Churchillii*, Hort. 17, *integrifolia*, Linn.—*Candolleana*, Reich. 18, *Allioni*, Lois. 19, *tyrolensis*, Schott. 20, *minima*, Linn.—*serratifolia*, Gusm.—*Sauteri*, Schott. 21, *glutinosa*, Wulf.

Hybrids of section *Primulastrum*. *brevistyla*, D. C. *variabilis*, Goup. 1—3. *digenea*, Kerner, 1—2. *flagellicaulis*, Kerner, 1—3. *media*, Peterm.; *unicolor* Lange, 2—3. *Tenoriana*, Kern. 1—3.

Hybrids of sections *Auriculastrum* and *Arthritica*. *biflora*, Huter, 20—21. *alpina*, Schleich.—*rhoetica*, Koch, 7—11. *Arctotis*, Kerner, 7—11. *Dinyana*, Lager, 17—11. *discolor*, Leyb. 7—12. *Dumoulini*, Stein, 20—14. *Facchini*, Schott, 20—14. *Floerkeana*, Schrad, 21—20. *Forsteri*, Stein, 20—11. *Gohellii*, Kern, 7—11. *Huteri*, Kern, 20—21. *intermedia*, Portenschlag, 20—16. *Kernerii*, Gobel & Stein, 7—11. *Muretiana*, Moritz, 17—11. *obovata*, Huter, 7—18. *Peyritschii*, Stein, 7—11. *Portae*, Huter, 7—12. *pubescens*, Jacq.—*rhoetica*, Gaud.—*helvetica*, Don, 7—11. *pumila*, Kern, 20—12. *salisburgensis*, Florké, 21—20. *Steinii*, Obrist, 20—11. *Sturii*, Schott, 20—11. *venusta*, Host, 7—9. *Venzoi*, Huter, 19—15. *Weldeniana*, Reich. 7—14.

### A COMPARISON OF MANURES FOR THE GARDEN AND ORCHARD.

[A paper by Professor G. C. Caldwell, Ithaca, New York, read before the Massachusetts Horticultural Society.]

How to manure the garden or the orchard for the most profitable results is one of the most difficult questions that the horticulturist has to meet. Of the biggest and most solid Cabbages, the earliest Peas, the largest Squashes, the sweetest and most prolific berries, the handsomest and most delicately flavoured Grapes, the most luscious Peaches or Pears, the earliest or the best late-keeping Apples, he has an unlimited variety offered him by all the seedsmen or nurserymen in the land; and he need find no difficulty whatever in laying out to good advantage all the money he has to spare for use in this direction. Of the most suitable land on which to plant all these crops there is enough and to spare somewhere in all this wide country. Of tools and labour-saving machines of every kind, and of men and animals to run or to use them, there is no scarcity. In respect to all these supplies there is only embarrassment of riches; and no crop need fail of producing good fruit abundantly, from any want of liberal provision for its highest requirements on any of these lines.



But is there such a superabundance of supply, when we come to the matter of the highest requirements as to the food for these crops? Is there a sufficiency of a supply of such kinds of food as will, in the general run of garden and fruit culture, give the surest results? Is not the gardener's call always for more stable manures? and is the call of the fruit grower any less loud? One naturally asks, Why is this so? when there are, elsewhere at least, immense if not inexhaustible quantities of the nitrogen, phosphoric acid, and potash, that are reckoned as so important plant nutrients, all to be had for the purchasing, and under so great competition that they ought to be had for as low rates as they can be sold for, paying fair profits. They can be had also in every form of combination, and every degree of assimilability, and in any desired mixture; and, further, to save the farmer or the gardener the trouble of studying out for himself the kind of combination that his crop needs, mixtures are offered to him, ready made up, for each crop.

Abundant as these supplies are, they do not seem fully to answer the purpose; for I doubt if the demand for animal manures is any less urgent now than it was before commercial manures became the important articles of trade that they now are. Yet, in agricultural operations, superphosphates, bone meal, nitrate of soda, and the like have, in some few cases, been made to take the place entirely of stable manure, with profit.

Perhaps you have heard the history of Mr. Prout's farm in England. Mr. Prout bought this farm in 1861; it comprised four hundred and fifty acres, and its cultivation in the manner to be described was, therefore, no small plot experiment. It was, when taken in hand, in a low condition of fertility; the owner asked the aid of the eminent agricultural chemist of England, the late Dr. Voelcker, as to the best way to bring the farm into good condition again. The advice was to dress it well with stable manure. After doing this with unsatisfactory results for two years application was again made to the chemist, who told the owner to use more stable manure; he said he could not afford it; then the chemist visited the farm again, examined it carefully, and suggested the use of commercial fertilisers after a certain plan. The plan was followed, and bone dust, superphosphate, dissolved guano, and nitrate of soda were the only manures used from that time on. The crops—clover, hay, grain, straw, and everything—were all sold standing; only an insignificant quantity of manure was made, the cultivation being almost entirely by steam. This system has now been carried on for more than twenty years. The estate cost the purchaser in the beginning, 74,500 dols.; enough more was spent upon it in improvements to make the total cost about 100,000 dols. The annual clear profits have been, on an average, about 4500 dols.; and it was estimated that the farm could be sold, eight years after it was taken, for twice what it had cost. Last fall the crops were reported as looking well, and the system was spoken of as continuing to succeed, although with the qualification that some fallows had been found necessary.

This is not the only instance on record of this kind of farming. Other cases have been reported where the system has been followed for forty years, in Germany. I give these few details in regard to this one instance merely to show what can be done with commercial manures when intelligently used—to show that they do contain all the food required by crops—and that, with their assistance only, a farm can be brought up from a low condition to a higher one, and held there for a series of years; and no one can show that what is true of farm crops should not be true of garden and fruit crops as well—if not to the same extent, yet to a large extent. They feed on the same kinds of soil, and in the same manner, and require the same nutrients in general; and the same particular nutrients that are specially important for farm crops are, so far as we know, specially important for garden and fruit crops; the proportions required may be different, but perhaps not more so than they are even for different farm crops; the same mixture of nitrogen compounds, phosphates, and potash salts will not answer equally well for Wheat and Potatoes, nor even for Wheat and for corn, which are more nearly alike than Wheat and Potatoes.

What are the obstacles in the way of the more extensive use of commercial fertilisers in the garden and fruit orchard, and of less dependence on the products of the city and village stables? In answering this question we naturally ask, first, what does stable manure contain that is not supplied in commercial fertilisers?

The valuation of a commercial fertiliser in the trade is based, as you know, on the quantities of nitrogen, phosphoric acid, and potash that it contains—some fertilisers containing only one of these nutrients, others two, and others all three of them. There is no question that in respect to just these nutrients we can meet the wants of any crop better by supplying commercial fertilisers than we can by stable manure, if there is any difference between the two as to efficiency. But, besides these, the crop must find in the soil, supplied from some source, lime, magnesia, sulphuric acid in the form of sulphates, of which plaster is one, a very little iron, possibly chlorides, of which common salt is one, and, perhaps, silica. Every superphosphate contains an abundance of lime and of sulphuric acid. The muriate of potash, brought from Germany, is a chloride, and contains chlorine. Of iron every soil has an abundance, many thousand times more than any crop needs; and the same is true of silica; of magnesia there is enough to be had in the German kainite. But as to all of these nutrients last mentioned—sulphate, chloride, silica, iron, and magnesia—there is no proof that the average soil is not abundantly rich in them for the production of good crops. Hence it is that we are justified in charging all the cost of a commercial manure to, and expecting to get our money back from, its nitrogen, phosphoric acid, and potash; the rest of the ingredients must be thrown in gratis, as of no value generally, although there may be cases where one or another of them may be of some service. All of these matters the stable manure also contains in abundance.

So far no one can claim anything for the stable manure that is not supplied by the commercial fertiliser. The only respect in which the two materials are distinctly unlike is this: the stable manure is composed largely of dead vegetable and animal matters in process of decay; the product of this decay is the humus or vegetable mould of the soil. About one-fifth of ordinary stable manure is made of this vegetable and animal matter, while not over six to eight thousandths is potash, five to six thousandths nitrogen, and three thousandths phosphoric acid. Of nitrate of soda, so much mentioned as a very useful fertiliser for its nitrogen, one-sixth is this nitrogen. Of a good superphosphate, as this fertiliser averages in this country, about one-eighth is phosphoric acid; and if one desires it,

and is willing to pay for it, he can have a superphosphate with one-third its weight of phosphoric acid; of a German muriate of potash from a third to a half may be potash. But in all these materials there is no vegetable matter, and little or no animal matter.

Here, then, is a clear distinction between the two kinds of manure, the stable and the artificial; the stable manure has its few thousandths of nitrogen, of phosphoric acid, and of potash, and its one-fifth of decaying vegetable and animal matter; the commercial manure only its few thousandths or even less of animal matter, and its proportions of nitrogen, phosphoric acid, and potash counted by eighths to thirds. About three-fourths of the stable manure is only water, however; expel this, and get a manure as dry as commercial manures ordinarily are, and the comparison between the two will be more just and no less striking; we shall then see that four-fifths of this dry manure is decaying vegetable and animal matter, about one-fourtieth is potash, one-eightieth phosphoric acid, and one-fiftieth nitrogen.

Can any way be now shown in which this striking difference between the two kinds of manure may account for the greater measure of success that is attained in general with the stable manure?

(To be continued.)

## PROPAGATING FICUS ELASTICA.

FOR usefulness and durability the Indiarubber Plant has become indispensable. Floral decorators and furnishers have long known the value of this plant with its bold foliage, which it retains even when subjected to long-continued hardships. It is rarely seen in a sickly state, whether it be in the window of the drawing-room, the greenhouse or conservatory, or the stove, and its requirements are so simple that anyone may succeed with it. Is it, then, to be wondered at that so many are desirous of possessing such an accommodating plant? When once purchased it is easily managed, and further, should it become dusty or dirty it may be cleaned in a few minutes.

It may be readily increased by means of cuttings, but when suitable cuttings are to be had the process is a very simple one. The two chief points to be secured are plump and prominent eyes and matured wood; if you have not these the chances are that the eyes will remain dormant for a considerable time. By way of verifying these statements I may turn to the fact that some years ago, before I was as well acquainted with the plant as now, I used to put in every piece that I could find, with the result that the soft immature wood seldom produced good plants; the cuttings would root in the usual way and remain for months without starting. These were ultimately thrown away, for the simple reason that they would not pay for room and attention. From this time I always endeavoured to insert only firm wood with prominent eyes, and I was invariably rewarded with a good batch of plants. The following is the method I now employ in the propagation of this plant.

Presuming a certain number of plants are destined for propagation, no matter whether they are plants with single stems or whether they are old stools and composed of several leads, I head them all back—in other words, take a good cutting of the leading shoot from each and, inserting them in single pots in sandy loam, plunge them in a bottom heat of 75° or thereabouts. This operation should be performed early in January and the old plants allowed to remain. In about three weeks from the time they were beheaded the auxiliary buds will begin to swell (of course the time will vary in proportion to the temperature in which the plants are growing), then it is that the bud may safely be removed, for at this stage they root readily and are soon in active growth. The plants may be cut into single eyes, leaving a leaf with each. As soon as detached from the old plant I thrust the cuttings into some dry silver sand, which stays considerably the flow of the milky sap which exudes from the cut ends. The cuttings may now be potted into 2½-inch pots, using loam and peat in equal parts, making it rather sandy; press firmly, and in some cases it will be necessary to employ one or two small crocks to keep the cutting in its place, and owing to the naturally short-jointed cuttings, two small sticks in an upright position should be used; secure the leaf loosely between these and there is no further fear of its removal. Plunge them in the propagating frame in the bottom heat referred to above, when in from fourteen to twenty-one days the majority will have formed roots, and may be seen on the surface of the soil. If they receive a thorough watering at first they will not require another for a week or more.

There is one other point, of only minor importance probably, and that is the splitting in halves of the larger pieces of wood; but having tried both ways I have failed to notice any benefit from splitting the stems, the main points being, as I have before stated, firm wood and plump eyes. When growth has fairly begun they should be removed from the bottom heat to a cool place near the glass, when a steady short-jointed growth may be secured, and as soon as fit give them a shift in 5-inch pots, and by the end of the season plants from 20 to 30 inches high may be had, adapting throughout the growing season the cool treatment, which will insure sturdy vigorous plants, well furnished to the pot with their broad handsome foliage.—J. H. E.

## BRIEF NOTES AT PARK PLACE, HENLEY-ON-THAMES.

A VERY agreeable hour was spent in a visit to these gardens, the residence of J. Noble, Esq.; and, though it was a wintry day, I found plenty that was interesting, respecting which the following brief and imperfect notes are submitted. The plant houses form an important feature, and in one of the first we entered, a compartment filled with cool Orchids, where *Cattleya intermedia*, *Masdevallia tovarense*, *Odontoglossum*, *Uro-Skinneri*, amongst others, are in flower. In the following



compartment *Angræcum sesquipedale* is very fine, also *Phalænopsis Schilleriana* showing a spike with fifty-five or sixty flowers, *Dendrobium* in variety in large numbers, with fine well-ripened growths. In this house *Vanilla aromatica* is quite at home, showing about a dozen bunches of fruit. We must not omit to mention some fine examples of *Cœlogyne cristata* *Lemoniana*, several being fully 2 feet across; also quantities of *Calanthe Veitchii* and *vestita*, very bright. There are some remarkably strong *Lapagerias rosea* and *alba*, which are intended to cover the roof; the red and white are planted alternately, and are throwing up stout shoots. *Thysacanthus rutilans* is flowering freely. The plants are in 5-inch pots suspended from the roof by thin wire, presenting a novel appearance, the racemes of red flowers hanging considerably lower than the pots. An extremely fine healthy example of *Stephanotis* covers the roof of one house, and the platform is filled with healthy *Gardenias* for succession. These are chiefly in 6-inch pots. Useful table plants and *Euphorbia jacquiniæflora* are well grown. Palms and winter-flowering *Begonias* receive much attention. There is a pretty aquarium, well furnished with *Nymphæas* and other aquatic, with ornamental fish in abundance. One house is filled with a useful collection of *Camellias* flowering freely; another with *Tree Carnations* of the most popular varieties, which have almost completed their work for the season. Roses, however, will soon take their place. *Hoya imperialis* and *Allamandas* planted out cover the roof in another house, where some fine *Bananas* are also grown, besides *Gardenias* just commencing to flower.

The houses containing fruit trees are numerous. The first is a fine structure, 100 feet in length, filled with *Cherries* trained to the rafters, with pyramid *Peaches* between; a fine stock of *Figs* in pots is grown also, all in the best health. Vines in pots are promising well; when finished they are taken to the conservatory to furnish pillars. There are also some promising *Tea Roses*. A house is devoted to *Figs* planted out, but much confined at the roots, as Mr. Stanton, the able superintendent, considers that he gets much better flavoured fruit in larger quantities by this means. In the same range is a late vinery newly planted with *Black Hamburgh* and *Buckland Sweetwater*. An early vinery contains *Muscats* and *Gros Colman*, and another contains late Vines. Spaces to answer for shelves are left in the brickwork of the back walls of the whole of these houses for *Strawberries*, *Violets* in pots, &c. *Peaches* are in flower in the next house, and there are some fine *Shaddocks* on the back wall. There are other vineries, but I specially noted a *Peach* house in which are some fine specimens of *Eupatorium odoratum* about 4 feet high and as much in diameter. In one large house the roof is also covered with *Cherry trees*, all the best varieties being grown there. *Lady Downe's* is much prized as a late *Grape*, of which Mr. Stanton has a fine lot in bottles. A few *Alicante* are yet left, and some *Muscats*. A collection of *Grapes* for trial is grown with *Peaches* beneath running across the border, having quite a novel appearance, and seem to be very healthy. *Roses* are grown on the back wall of this house. Quantities of other plants for early flowering may be found in all the vineries in different stages. The fernery is placed beneath the conservatory, and is very charming, mirrors being so arranged as to make some very pretty views.

A very noticeable feature is a fine hedge of *Thuja borealis* dividing the fruit garden from the space allotted to the glass. The fruit garden is very complete; handsome trees trained in various ways clothe the wall, all available space being covered with fruit of some description, cordons being used on the small spaces round the houses, offices, &c.—J. P.

#### STIRLING HORTICULTURAL ASSOCIATION.

THE members of this Society assembled on January 28th in considerable numbers at Dowdy's Temperance Hotel, Stirling, to hold their anniversary meeting. As has been usual on such occasions, they took tea together and afterwards discussed topics relating to horticulture. Mr. M. Temple, Caronhouse, a new member, was requested to give an address on any subject suitable to such an audience. He took up points in relation to the progress and retrogression of horticulture during the last quarter of a century. Nothing was advanced as being derogatory to practitioners at the present time, but much sympathy was expressed for the men who were almost crushed out of their calling by the great reduction of gardening establishments, and the scanty allowance of means to maintain many gardens which at one time were among the leading places in the kingdom. England had suffered severely in this respect, Scotland was now following suit, and Stirlingshire was not exempt, numbers of the older places having been reduced to a nominal position so far as gardening was concerned, many being let, others standing tenantless. A high compliment was paid to many of the cultivators around Stirling, especially as cultivators of *Orchids*, some of the finest private collections in the country being in that district. Horticultural writers of the present time were complimented as men who wrote from their own practical experience, and many of them had shown what they could do by placing examples of their work on exhibition tables. Writers in times gone by often put voluminous matter before the public which was not from their own practical experience.

Exhibiting had its share of comment; and while large collections of plants of smaller size now occupied the tables at leading shows, large specimens of stove and greenhouse plants were scarce. Reference was made to certain growers of these whose names were once household words; but now few of the men who thus distinguished themselves were to the fore, and such plants as they cultivated are rarely seen. Among the specimens from the stove were huge *Allamandas*, *Dipladenias*, *Stephanotis*, and *Ixoras*, with perfect foliage and loaded with bloom. Greenhouse plants, too, were reported as being equally fine, *Pimeleas*, *Aphelexes*, *Boronias*, *Leschenaultias*, *Lapagerias*, *Chorozemas*, *Azaleas*, and *Heaths* having honourable mention as being among the princes of plant specimens. Those which have suppl-

mented these had special notice, numbers of foliage plants being among them.

Referring to the florists' flowers, it was stated that improved taste in many respects had been the means of crowding out such flowers as the great breadths of *Dahlias* which were once so common in the north. *Roses* had improved much both in varieties and cultivation, but many of the old favourites still held their own. The reintroduction of herbaceous plants and the exclusion of a large portion of tender kinds, which give much labour and short duration of bloom, was considered wise, and allowed the cultivator time to attend to other matters. Cut flowers and plants for indoor decoration had for some years taken much labour and expense, but owing to the depression of trade and the misfortunes attending agriculture many places had been reduced. A comparison of marketmen's advantages in the production of flowers over that of private growers was made a strong point, reference being made to a once large establishment which gave supplies in immense quantities, such as Mr. Temple had seen in no private gardens. Means were simple, but most efficient for its purpose, and each class had quarters to itself and treated as they required. *Gardenias*, both as market plants and stock for cut blooms were minutely described, and said to be easily kept free from insects. Steam from the manure linings is a powerful agent in maintaining free growth and keeping insects in check.

Vegetable-growing came in for its share of consideration. Vegetable exhibiting was much improved within the last score of years, but the majority of kitchen gardens had suffered from a reduction of labour and means in general. Skill and energy of cultivators had not deteriorated. Fruits, both hardy and forced, had not made much progress. *Black Hamburgh* and *Muscat Grapes* in first-rate condition were not proportionately so numerous as they were twenty years ago, but the larger, coarser, and "keeping" varieties were cultivated to a much greater extent now than formerly. Among other branches of horticulture landscape gardening had a special attention. It was pointed out that this had been much neglected. Reference was made to the work of Capability Brown at *Blenheim*, *Burleigh* near *Stamford*, and elsewhere, and that of later date by the



Fig. 17.—*Cephalotus follicularis*.

veteran Mr. Marnock, who received high commendations, and was considered one of the most distinguished of Scotch landscape gardeners. Severe criticism was made on the twisting of sheets of waters (such being carefully avoided by the two men referred to) and calling them "lakes;" cutting up lawns, calling such flower gardens; shutting out tracts of fine country, &c.; and the calling heaps of stones rockeries. Mr. Temple received a very hearty vote of thanks at the conclusion of his address.—J. R.

#### CEPHALOTUS FOLLICULARIS.

THIS pretty and interesting little plant is a native of Australia, where it was first discovered by Labillardière, who described and figured it; subsequently Mr. Robert Brown also found a specimen during his voyage with Captain Flinders. It was first cultivated in England about 1822, and is now by no means a rarity. The plant is remarkable in several ways, for it is the only species of the genus, and is considered sufficiently distinct to constitute a natural order (allied to the *Polygonums*), and we thus have the peculiarity of a family composed of one individual. In the leaves, too, we find another singular feature—some are flat and elliptical in form, while others are converted into extremely neat and pretty little pitchers or ascidia, somewhat resembling those of *Nepenthes*, only much



smaller. They are dark green with a purplish shading, and pink veins, and are furnished with small lids, the mouth of the pitcher being bordered with a dark-coloured furrowed ring.

This *Cephalotus* is an inhabitant of marshy land; it should therefore be provided with a soil composed of peat and live sphagnum moss, the pot being well drained and placed in a shallow pan containing water. If the plant is grown in a pan, that should be placed inside another larger one, the space being filled with fine Derbyshire spar and kept constantly moist. In either case a bellglass should be placed over it. The best position and temperature is the cool end of the stove or Orchid house, where with careful attention in supplying the requisite moisture the plant will grow freely.

**ORANGES AND PINE APPLES.**—In an official report it is said "The falling off in exports from St. Michael's to England, especially during the past ten years, is, I have good reasons for believing, to be largely due to the increased production of Oranges in the south of Spain, which has competed with the fruit of the Azores throughout this period. The season of 1873-4 saw the English markets glutted with large importations of Oranges; in the season of 1884-5 the export of the same fruit from St. Michael's was the worst recorded for the past forty-two years. Cultivators are disheartened, and those who have not already succumbed to its effects have cleared their land of trees, and planted it with cereals and the Sweet Potato. In striking contrast to this rapid decline in the Orange trade is the marked increase in the value of the Pine Apple export. Increasing attention has been given during the last fifteen years to the cultivation of the last-named fruit; and the exportation last year reached 184,400 Pine Apples, of an estimated value of £19,699."



#### KITCHEN GARDEN.

**THE WEATHER AND WORK.**—Of late the weather has been decidedly against work in the kitchen garden. We have had more frost, snow, and severe weather in our locality this winter than has been experienced for some years, and from all we hear this is the experience of many others. It will not be an early spring, but the complete rest which vegetation is now enjoying may induce rapid and luxuriant growth when genial weather returns. All those from whom a supply of vegetables are expected must begin planning how best to advance them. Sowing in the open ground just now is impossible, but thousands of plants may be raised under glass in a very little space; cutting boxes are most useful for this purpose. If several of them, from 2 feet to 3 feet in length, and 1 foot or more in width, are sown with Cabbages, Cauliflowers, Lettuces, Onions, &c., the plants will be in good order for placing out in a month or six weeks. Fill the boxes with good soil, sow the seed thinly, only force them when quite young, harden them well, keep them near the glass in a cool place when they are 2 inches high or so, and anyone who walks round the garden in April will be unable to say that the weather has retarded any vegetables. We prefer open air culture to all others, but when we see this cannot be managed with advantage, we resort to the underglass systems, and these are in operation with us.

**FRAME CARROTS.**—In April and May these are greatly valued, and we would advise all who have the means of making a hotbed, and can place a frame on the top of it, to sow at least one frame of Carrots. The present is a profitable time to sow. Make up a good hotbed, put the frame on the top, and then fill in the soil. In the park close by the moles have been at work; they have thrown up some excellent soil, and this we have wheeled in for the frame Carrots. Being friable it suits them well. It should be mixed with a liberal quantity of sand, a little soot, and some well-decayed manure. Soil 6 inches deep is quite sufficient to bring all the Horn varieties to perfection, but it ought to be trampled very firmly, and the seed be sown thinly broadcast. We always cover the seed with sea or river sand, and this keeps the surface sweet. The lights are placed on immediately sowing is done, and air is admitted on fine days. Those fine Carrots which are often seen at early shows are raised in frames in the way we suggest, but for the Intermediate the soil must be about 1 foot in depth. Those who wish to show fine Carrots in May and June ought to make a substantial hotbed and sow at once. We have just sown seed in three large frames, two for the kitchen, and one for show roots. The former are Early French Forcing, the latter an Improved Intermediate sort.

**DWARF FRENCH BEANS.**—Make a very large sowing of Cooling's Ne Plus Ultra. With gentle forcing they will be ready for gathering about Easter, and they will be very valuable in the market then and acceptable in the kitchen. Put from eight to ten seeds into a 3-inch pot, employing rich soil, and allowing them to become about 4 inches high in these before shifting into larger pots. We have tried growing them early in narrow boxes, but they never succeeded like those in the pots; and

although the pots require more space than the boxes, the extra good crop secured more than compensates for this. Plants raised from seed during January will grow slowly, and it is better not to force them too hard, as this will only cause them to grow weakly and spindly, and when this happens they do not fruit freely. In potting, use rough soil and horse droppings, and be careful not to supply too much water, as the young plants are rather apt to suffer from this during the short days.

**MUSTARD AND CRESS.**—Those who gave up growing these during the shortest days may take to them again, as they grow more freely now than in December, and as other salads may be becoming scarce the Mustard and Cress will give satisfaction. Sow in the usual manner in shallow boxes filled with any kind of soil and place in a temperature of 60°. Fanciful persons sow in soup plates, placing them on the table full of growing plants.

**POTATOES.**—Plant more in frames as suggested on January 7th. Probably those put in now may be ready for digging as soon as any put in some weeks ago. Admit a little fresh air to those through the soil when the weather is favourable, but do not give them any water. Cover with mats when it is frosty, and do not allow them to be checked in any way. Early varieties in their store places are now sprouting and require attention. They should all be placed in trays or shallow boxes one layer deep, and placed in a cool position fully exposed to the light. So long as frost is excluded that is sufficient, as the object is to secure dwarf sturdy shoots, and these are only formed in the light. Those tubers intended for immediate planting may receive different treatment by placing them in boxes, shaking a little sand or leaf soil over them, and then place them in a temperature of 55° near the glass to sprout freely. Later varieties which may be pushing shoots owing to being in a warm place must be turned over and the shoots removed.

**PEAS.**—Give those above ground a dressing of guano, then earth them and stake them carefully. Sow more seed of the earliest varieties, such as Ringleader or William the First. They will soon grow in the open and prove a useful succession to those up now, or others which may be raised under glass. In many gardens, especially large ones, the practice will now be coming into operation, and it has its advantages. Success all depends on growing them slowly and keeping them dwarf. If they are drawn up in a strong heat and a long way from the glass they will never prove remunerative. The best way is to sow a dozen seeds in a 3-inch pot, start them into growth in a gentle heat, and when about 2 inches in height place them in a cool atmosphere near the glass. In this way capital plants for placing out about the middle of March will be obtained. Where frames are plentiful seeds of American Wonder may now be sown in them. Give plenty of rich soil, and do not use deep frames, as it does not exceed 1 foot in height, and when in full crop the tops ought to be close to the glass.

**ASPARAGUS BEDS.**—These should now have a rich top-dressing. Many never think of doing this until they can see the young heads coming up; but it is late then, and now is the time to apply it if the fullest benefit is to be derived. Where the soil is light place a good layer of rich manure over each crown and wide enough to cover the roots. In heavy soil do not use manure of an ordinary kind, but apply a heavy sprinkling of guano mixed with an equal quantity of salt and soot.

#### FRUIT FORCING.

**PEACHES AND NECTARINES.**—*Earliest House.*—The past month has been unfavourable to forcing operations. Where, however, extra attention has been given to fertilisation, and the maintenance of low steady heat, particularly at night, there is every reason to anticipate a good set of fruit. If there are any late-blooming varieties it is likely they may still be in flower, and these must still have the camel's-hair brush passed over them daily, and the house kept moderately dry with a moderate circulation of air until the flowers begin to fade, when a slight syringing with tepid soft water will soon bring off the remains of the flowers, and set the mind at rest with regard to the first stage, which always, especially after a period of bad weather, causes anxiety to the cultivator. Peach trees in inside borders always do better than those having the roots in cold outside borders, and they will set in a lower temperature, and make up for lost time as days increase in length and brightness. It is best to follow the old sure method, as nothing is more annoying than the loss of a crop through undue haste. Proceed with disbudding cautiously; also shorten shoots that were left of full length at pruning time. Take off the foreright shoots first, commencing at the most upright parts of the trees, and work down to the horizontal branches at the base. Keep a sharp look-out for aphides, and fumigate upon their first appearance. Be careful, however, not to give too much, as the foliage and tender fruit are very susceptible of injury. See that all surfaces near hot-water pipes are kept constantly moist, and that the roots of the trees are well supplied with tepid liquid manure in a weak state. Make frequent additions of fresh horse droppings for giving off ammonia and acting as a check to red spider; but on no account must these or heavy mulchings be given until the stoning process is effected. Admit a little air on all favourable occasions, but be careful to avoid cold currents, and close sufficiently early to raise the temperature 10° to 15° from sun heat.

*Succession Houses.*—The trees now approaching the flowering stage—indeed those started early in the year—have the blossoms expanded, and will need less moisture, syringing directly over the trees being discontinued, but secure a genial condition of the atmosphere by damping occasionally. In other cases syringe well until the blossoms commence opening, and in case of a great show of blossoms remove those on the



under side of the trellises. Do not omit to fumigate on a calm afternoon when the trees are dry to destroy any aphides that may exist, and so keep the trees free from these pests until the flowering is over. If there be any doubt about the moisture of the inside borders give a thorough supply of tepid water, or weak liquid manure if the least indication is seen of impaired vigour in the trees from repeated forcing.

**Late Houses.**—The severe weather has kept the blossoms of the trees in these back, but as the wood was well ripened, and due attention has been given to watering the inside and protecting the outside borders, judicious ventilation will keep the trees in condition for giving full crops of fruit. Where the lifting and re-arrangement of trees in late houses has not been completed it should be brought to a close as soon as the weather permits, but on no account should the borders or trees be interfered with in bad weather, as working the compost when wet only converts it into mud and a soddened sour mass.

**MELONS.**—To achieve a quick but at the same time a sturdy growth the cultivator must have at command sufficient top and bottom heat, and by ventilating on all favourable occasions, closing early with genial atmospheric moisture on bright days, a quick, sturdy, and consolidated growth will be obtained, on which success in all fruit culture, especially with Melons, depends. Great care must be exercised in ventilating, a current of cold air being very injurious; hence a piece of hexagon netting should be placed over the ventilators when the days are bright, but the air cold.

Cover dung frames with double mats at night, and in case of very severe frost some dry straw or fern. See that the linings are regularly attended to, removing the old as necessary, and supplying with fresh material. Sow as occasion requires for successional crops, always taking care to have more plants than are likely to be required.

**CUCUMBERS.**—Keep the night temperature at 65° to 70° and 75° by day, with 80° to 90° with sun heat, closing early in the afternoon with plenty of atmospheric moisture on bright sunny afternoons. This, with judicious applications of liquid manure in a tepid state to the roots, will cause the plants to make free growth. Cropping lightly and keeping the plants clean are essential to free successional fruiting. Avoid overcrowding, keeping the foliage thin, removing bad leaves and exhausted growths, and stopping others one or two joints beyond the fruit as space allows.

Young plants are now ready for transferring to the billocks in the Cucurbit house, it having been thoroughly cleansed, and the soil placed in a few days previously to become warm. Press the soil firmly about each plant, place a stick to each, and fasten it to the first wire of the trellis. Should there be bright sunshine at the time of planting, give a light shading in the middle of the day, from about 10.30 A.M. to 1 or 1.30 P.M., to prevent flagging, after which it can be discontinued, and the plants subjected to the full influence of the sun's rays.

The linings of dung frames in which Cucumbers are growing will need to be attended to weekly or fortnightly according to the state of the weather, keeping a supply of well-mixed dung and leaves in readiness for that purpose.

**STRAWBERRIES IN POTS.**—The weather has been such as to barely admit of more than keeping the plants gently moving. Ventilate cautiously, and under or above the plants, so that it is warmed before it comes in contact with the flowers, and when the air is cold and sharp have some hexagon netting placed over the ventilators. Water plants in flower on the mornings of fine days, lifting the leaves and flowers with one hand, so as to avoid wetting them, and keep the water from the crown, as that sometimes suffers through the frequent applications of water and a close atmosphere. Have the atmosphere rather dry for a couple of hours each day, so as to insure conditions favourable for fertilising by a little extra heat if necessary with freer ventilation. Fertilisation is quickly effected with a feather duster, examining the flowers each day, until there is a good crop set, after which remove all superfluous flowers and deformed fruits. Introduce more plants for successional fruiting, according to the space at command and the requirements.

#### PLANT HOUSES.

**Adiantums.**—Some plants should be pushed into growth without delay where a continuous supply of fronds in suitable condition for cutting is required daily. Plants from which fronds have been used during the winter have commenced pushing up new ones freely if they have not been in a lower temperature than 50°. Those most advanced should be placed in a slightly warmer house, and in a very short time a mass of developed fronds will be produced. After growth has fairly commenced the plants may be divided and repotted if they need more root room. For this purpose the majority of our plants are in 5 to 7-inch pots, and after the pots are full of roots each plant is cut into two and then replaced into the same size pots. By this method more roots are undisturbed, and the plants starting quickly freely again into growth. As soon as they are growing and rooting freely in the new compost they are placed in a light airy structure where the night temperature ranges about 55°. *A. cuneatum* is the most serviceable for this purpose, and if the fronds are to last well after they are cut they must be developed under the influence of light and abundance of air. Other varieties where large fronds are required for other purposes may be treated in the same manner. A very suitable compost for these plants is fibry loam, one-third leaf mould, and a liberal dash of coarse sand. Leaf mould for these plants is preferable to peat.

**Plants in Baskets.**—It is surprising what a number of fronds can be

obtained from plants grown in wire baskets 8 or 10 inches in diameter suspended from the roof of plant houses or even vineries. *Adiantums* do remarkably well in baskets, and will yield the requisite material for cutting without taking up the stage room of plant houses. When dividing the plants, if good portions are placed in baskets and grown on through the season they will be fully 2 feet through by autumn. For two or three years the plants will do well in baskets, and by that time they will be a mass of roots and should be turned out, divided, and given as much fresh soil as the space in the baskets will allow. During the summer these plants may be suspended in any cool house, but after the fronds have been gathered in autumn they must not be kept in too low a temperature during the winter, or else they will not start freely again in spring. The same soil should be used for these as when the plants are grown in pots, only it will be necessary to use fibry peat towards the outside of the baskets.

**Davallias.**—Such species as *D. bullata*, *D. canariense*, *D. dissecta*, *D. Mariesi*, *D. Tyermanni*, and others may be more successfully grown in baskets for supplying fronds for cutting than is the case in either pots or pans. Those named can all be grown successfully in the greenhouse; in fact, will bear during the winter the low temperature of a vinery without the slightest injury. For these plants baskets slightly larger should be employed, for under good cultivation their creeping rhizomes will soon take possession of the whole of the outer surface of the baskets, and when in this stage they are very beautiful suspended in any plant house. Although these do well under the conditions indicated, they enjoy a little heat to start them into growth, and by this means fronds are ready for use much earlier in the season than would otherwise be the case. The fronds of these plants are invaluable for cutting when grown under cool moderately light conditions, for they remain perfectly fresh for a long time after they are severed from the plants. When grown in heat they are much subject to the attacks of thrips, which is not the case when grown under comparatively cool conditions and liberally syringed. For these plants we prefer a compost of equal parts of peat and fibry loam in a rough state with charcoal freely intermixed. Stove varieties are also very handsome and useful in baskets, especially *D. Mooreana*; these may be placed in them at once, or divided as required.

**Selaginella coesia.**—This is a charming plant for furnishing purposes, and may be most effectively used for a front edging in the stove, intermediate house, or even the conservatory, during the summer months. When used alternately with *Panicum variegatum* the effect is all that can be desired. For these purposes plants are the most suitable in 4-inch pots, and cuttings of *Panicum* can be rooted in the same size for association with them. During the winter this *Selaginella* can be accommodated in any cool position; in fact, our plants are generally kept in a cold vinery. If placed in a temperature of 50° they will commence growing at once, and in about a fortnight from the time they are started may be divided and potted in the size required. Each plant grown for a season in this size will make three or four quickly when divided, therefore it is unnecessary to keep a very large stock through the winter. These plants grow well in loam, leaf mould, and sand.

#### THE FLOWER GARDEN AND PLEASURE GROUND.

**Propagating Summer Bedding Plants.**—It is a mistake to sow the seeds of various bedding plants, with a few exceptions, very early in the year, as in this case they are liable to be too far advanced by the time bedding out commences, and a serious check to their growth may be given. Too often such free-growing kinds as *Ageratums*, *Petunias*, *Antirrhinums*, *Pentstemons*, *Dahlias*, *Pyrethrum*, are sown very early in the year only to remain in a crowded state in the seed pans, till they have become drawn and almost worthless. Annuals, especially such as *Stocks*, *Asters*, *Marigolds*, *Zinnias*, *Dianthus*, and *Godetias*, ought not to be raised long before they are planted out, as anything in the shape of a check to their quick sturdy growth is certain to materially detract from their usefulness and beauty. In due course all the popular kinds will be again alluded to, and the methods of raising and growing them we have found perfectly successful will be given.

**Tuberous Begonias.**—These are now found of great service in the flower garden, no class of plants succeeding better in dull wet weather, and during more favourable weather they almost equal the *Zonal Pelargoniums* for brilliancy. Seedlings may be raised and planted out the same season with good effect, but one-year or two-year-old tubers are most suitable for bedding out, especially in prominent places. It is very unwise to sow seed saved from common or inferior varieties, the more compact strains, and which produce finer better shaped blooms, being by far the most effective in the flower garden. Sow the seed at once on the surface of a pan of fine peaty soil, or what will do quite as well, a mixture of fine leaf soil and sifted loam. Make this rather firm and quite level, moisten it through a fine-rose watering pot, sow the seed thinly and evenly, and sprinkle over, but not so as to bury it deeply, a little fine silver sand. Stand the pan on a mild hotbed, cover with a square of glass, and shade heavily till the seedlings are up, afterwards from bright sunshine only. They must be kept uniformly moist, care being taken not to wash them out of the soil, and they should be pricked out in boxes of fine light soil before they spoil each other in the seed pans. Keep them growing in a warm house or frame till the middle of April, when they ought to be large enough to prick out in a frame of good soil disposed on a slight hotbed. From this they will transplant readily. Old bulbs ought to be allowed to start naturally either in boxes of good soil



or in frames, and, as a rule, will be of good size by the time they are wanted. To start them early and in heat spoils them for bedding out.

*Lobelias*.—In many gardens these are planted out extensively, and propagating has to be commenced early in consequence. When there are plenty of stocky old plants these yield abundance of good cuttings, or they may be split up into small pieces each with a few roots attached and dibbled into boxes or pans of fine soil and kept growing in a gentle heat, such for instance as an early vinery or Peach house. Cuttings, if not too hard or "wiry," strike readily under handglasses on a hotbed in boxes of soil and covered with glass or in ordinary propagating frames, care being taken to dry the glass every morning if damping off commences. Rooted cuttings should be first dibbled out into shallow boxes of fine good soil, and later on be temporarily planted out into frames, where they will become large plants by bedding-out time, the rooted divisions also being improved by similar treatment. Where there are no old plants the stock must be raised from seed. Seedlings are usually more vigorous and less compact than plants raised from cuttings or division; but for large beds or for edging other stronger-growing bedding plants they are effective enough. All the leading seedsmen now supply good selected strains of *Lobelia speciosa*, *L. pumila magnifica* and *L. Erinus* varieties also being reliable. In order to secure strong plants the seed should be sown early. Being almost or quite as minute as *Begonia* seed, it should be treated exactly the same, subsequent treatment also being much the same.

*Centaureas*.—Although very effective these are not so much grown as they were, chiefly owing to the difficulty often experienced in wintering a sufficient number of stock plants. Strong cuttings taken off with a heel dibbled thinly in pans of fine sandy soil, and plunged in or stood on a brisk bottom heat, soon strike root; and if the operation is delayed till March or early in April many of the side shoots, and which only are suitable for propagating, may be taken off with roots already formed. We do not attempt to winter stock plants, preferring rather to raise the number of young plants required from seed. As they are rather slow growing, the seed is best sown early in February thinly in a pan or pots of light soil and plunged in a mild hotbed and covered, after being watered, with squares of glass, the latter being gradually removed after the seedlings appear. They are best not disturbed till they are about 3 inches high, when they may be placed singly into 3½-inch pots, any light loamy soil, with a little Mushroom bed refuse for drainage suiting them. They must be still kept in heat till well established, when they can be gradually hardened off. If finally planted in fairly rich soil they soon attain a good size, growing more rapidly than plants raised from cuttings. *C. candidissima* is the most compact in growth; *C. Clementi* and *C. gymnocarpa*, the former growing 2 feet in height and the latter rather less, being also very desirable either for ordinary or sub-tropical bedding.

*Chamæpeuce*.—There are two sorts of this Thistle-like plant suitable for bedding out, both of which are raised from seed exactly as just recommended in the case of *Centaureas*. *C. diaantha* has silvery spiny foliage, and is the most generally grown, but *C. Cassabonæ* with green spiny foliage is also very pretty and useful. Both may be employed in carpet beds with advantage, a few plants being kept in pots to replace any that may die prematurely, as they are unfortunately somewhat liable to do.

*Cannas*.—Those who have a number of strong clumps of these stored away may, if they wish to, safely split them into nearly as many pieces as there are young growths; this being done later on. If there is none in stock, then, in order to have a few for sub-tropical beds, and where they are remarkably effective, procure some seed. This is extremely hard, and to insure quick germination must either be soaked in warm water for several hours or till softened somewhat, or they may be filed through sufficiently to admit of the germ bursting its way through. The seed in either case being sown in pots or pans of peaty or light soil, should be plunged in a brisk bottom heat and watered with warm water. When the seedlings begin to unfold their first leaves they may be transferred singly into 3-inch pots and given a shift into 6-inch pots later on, or they may be placed at once into 5-inch pots. Good fairly light soil suits them, and they should be kept growing under glass till late in May, and be finally planted out before they become badly root bound. *Canna* seeds can be purchased in collections of separate varieties or singly, some of the best sorts being *Annei*, *Chateri sanguinea*, *grandiflora floribunda*, *maxima*, *nigricans*, *sanguinea*, and *zebrina*.

*Grevillea robusta*.—This is a rather slow-growing green-foliaged plant, very durable and fairly ornamental. Seeds sown in a pan of light sandy soil, plunged in a hotbed and covered with glass, frequently germinate satisfactorily, and if the seedlings are placed singly into 4-inch pots they will attain a useful size by the time they are required. As a rule they are of most service during the second and even third years, and can be wintered among the conservatory plants.

## THE BEE-KEEPER.

### INITIATORY INSTRUCTIONS.

A CORRESPONDENT and reader of this Journal is desirous for his own and others' benefit to be instructed in the rudiments of bee-

husbandry and of the Stewarton hive, as hitherto I have been too far advanced for beginners. As there is no royal road to learning bee-keeping, neither is there any first lesson to give, at least I am ignorant of what the first lesson in bee-keeping is. As regards the legislators introducing the subject of bee-keeping into elementary schools, I consider is at present not feasible, as there are too many widely differing opinions on the principal points of bee-keeping. "Felix's" remarks on pages 55 and 56 are good. My previous silence on the subject arose entirely through the absurdity of the proposal, apart from the scientific questions of bee-keeping, which is one for the study, not for the school. There is already by far too much teaching in schools in committing to memory that which is of no present and little future use. Teach by varied reading as much as possible, but commit to memory only that which the pupil will be benefited by in after life.

At page 56 there is an illustration of the mischief wrought by the teachings of the leaders in bee matters differing from each other. This was caused by ignoring the advice frequently given in these pages, and "Plus" has thereby brought the calamity on his hive. I can fully sympathise with "Plus" in the loss of the bees, and am also cognisant of the dilemma bee-keepers are placed when two widely different plans of management are given by two persons. In the case mentioned by "Plus" the bees were removed 300 yards at the end of September, and since then there have been many opportunities for the bees to air themselves. When they did so they simply returned to their old site, and not finding their hive perished. For some time before January the weather was very mild, and the bees were active everywhere. Those that were seen flying about a week or two ago were robber bees, and not those of their own hive. The foregoing introductory remarks have not been made solely for the information of "Plus," but for all others who are seeking it, and particularly for those wishing for initiatory instruction. It is rather tantalising after one has given all instructions to find that they have been ignored.

When I am in a fix, not knowing how to act for want of knowledge, a lesson from Nature direct often gives the hint desired; when the lesson is ignored, resulting in loss or pain, we become doubly impressed with its importance, and better care is taken in the future. I am inclined to think that the natural history of the bee should be partially known by the intending bee-keeper, and that the subject should be thoroughly studied by experimenting thereafter; not that by so doing and gaining knowledge thereof better results are to be expected, but that by having a thorough understanding of the natural history of the bee much after-disappointment is prevented, difficulties are more easily overcome, and mishaps can be rectified in time to prevent disappointment and loss.

Supposing, then, that our pupil is already posted up in the rudiments of the natural history of the bee, and that he possesses one or more hives of bees in straw hives, he need not bother himself much about having ocular demonstration of the sting, the bees will very soon let him feel it; and if he is anxious to try the inoculation theory he has only to try one of the latest nostrums as a bee-quieter—viz., vinegar: rub some of it on the exposed parts of the body, and the bees will not be slow in using their stings. Repeat the operation, and he will soon learn the fallacy of inoculation lessening either the pain or swelling. If on being stung serious symptoms set in use means to bring about perspiration, apply camphorated oil with friction to the throat and upper part of the chest, inhaling and swallowing some sal volatile at the same time. It being next to impossible to intercept the flow of the virus into the blood after being stung, bleeding immediately after the sting alleviates both pain and swelling. Some people are not affected by stings, those may prosecute bee-keeping with safety; but all those who are seriously affected should not incur risk by keeping bees. Some people become greatly disfigured by the swelling, but are not otherwise seriously affected, therefore all such need not be troubled by the little unpleasantness.

To learn how to approach and manipulate the bees, and to know the time to manipulate when bees are not inclined to sting, are cardinal points for the novice to learn. The first should be done in a quiet, yet bold, but steady manner, wearing clothing free from smell or perfume of any sort, the skin being the same. If attacked by the bees veil at once, and approach the hive with carbolic acid, using it judiciously on the alighting board and the front of the hive until subdued by smell only, as its touch kills the bees. All manipulations should be performed while the bees are under the influence of the acid, and in such a manner that not a single bee is killed. The best time to perform any manipulation is under a temperature of 70° or more, and when the bees are filled with honey. It is highly disastrous if the bees are allowed to taste honey belonging to any other hive, it creates robbing and incites stinging.

Premising that all novices desiring information on the management of the Stewarton hive are well versed in minor details of bees



in straw hives, I will now proceed to the swarm issuing from a straw hive. Every thoughtful hee-keeper should have in readiness a few long rods, so that one of any length may be formed from these. On the one end of the rod a few feathers should be tied and saturated with carbolic acid. If the swarm attempts to settle on or in some inaccessible place the feathers held close to the place will dislodge them, and cause the bees to settle in a handier place near the ground. The sooner hees are hived after swarming the better, and should be at once placed on their permanent stand and in their permanent hive. Where the Stewarton hive is in use one or two boxes make a capital hiving box. After the hees are hived they are simply placed beneath those previously prepared with comb-foundation, where the hees ascend, when the under ones may be withdrawn. If it was not for fear of the comb foundation giving way I would use no other than the permanent boxes, but caution must be exercised.

I must, however, hark back and tell all about the hives, and where to get them. Messrs. G. Neighbour & Sons, 149, Regent Street, London, supply these to English and to the Channel Islands and Continental hee-keepers; Messrs. Warnock & Walker, Blantyre, whose advertisement appeared lately, is the oldest firm of hive-makers in Scotland, being established in 1835. These two firms are reliable, and hee-keepers will be well served by either of them. A passing remark about prices, and in justice to all concerned, may not be out of place here. I have examined goods from various firms, and find if one firm sells cheaper goods they are not usually of the same value. The cheap article is constructed of inferior material, and where much labour has been bestowed upon an article the price is often exorbitantly high. The difference in the value of timber hives are made from is about three and a half to one, so that where one maker produces an article at 12s. with but a moderate profit, another may produce the same article at a third that price with inferior material, but at a large profit, consequently it is the dearest. I write for the interest of hee-keepers and not of hive-makers, and I hope hee-keepers will weigh the matter well in their minds.

When new hives are wanted discard all those having sapwood, and give preference to yellow pine, which, though much higher in price, is more durable, and better adapted for hives and the health of bees than is yellow deal or white pine, termed in hee nomenclature pine. Both of these last mentioned are cheaper, but inferior to the first-named one.

When ordering Stewarton hives do not ask for less in number than three hody boxes, with as many supers. If sections are desirable get the crates made to hold six in width, and there may be two or three of these that will project a little at the corners, which must be filled in. This applies only to the first tier. But sections are not the most profitable things to use, divisible supers are the best. There are the common Stewarton and the "Renfrewshire-Stewarton," the latter has four frames in the centre of each tier. There is also the square-tiering hive introduced by me, which, though faulty for wintering, in possessing the four corners, which is liable to cause damp, as all square and oblong hives do. The above fault is obviated if ventilating floors are used. All the top bars of hives should have a groove one-eighth wide by one-eighth deep for comb foundation. All hives deeper than 6 inches should have frames, hives less than that bars are sufficient. Slides of some sort, too, are indispensable in every hive; but the Stewarton proper has but the one sort of slide. The only material difference between one maker's hive and another is that the slide runs right through and requires double the number of pegs of those which are stopped by a permanent peg. The former sort is the best, because the slightest tap on the end slackens the propolis and is easily withdrawn. These slides, too, should be so close as to prevent the hees caulking the joint between slide and bar.

Difficulty in withdrawing the slides is only experienced when they have been made slack at first. Each hive should have a pair of strong iron handles screwed firmly to the sides, and no hive should be without a ventilating floor. An outside case of some sort or other is very desirable, but not absolutely necessary, as they can be well protected with straw; and hives so covered cannot be improved on so far as health and comfort of the hees are concerned as well as for ease of manipulation in putting on and taking off supers or otherwise increasing or diminishing the size of the hive.

When the hee-keeper gets his hives from the maker his first work is to put the comb foundation in. These should be an inch narrower than the depth of the frame or hive, but should almost touch the ends, after which two boxes should be lashed together, the under one fully pegged, and the upper one filled with slides between bars. It is now ready for the swarm as previously directed. Where a common floor is used three entrances are necessary in all octagon hives, but since the introduction of the ventilating floor one is sufficient.

After a swarm has been located in a Stewarton hive of two boxes several weeks, the weather being fine and honey in abundance, another good swarm should be added, and several honey boxes added at the same time. Should the weather continue fine on the expiry of a

week, these supers will be well advanced and another added also not between the others and stock hive, because if the weather changes the hees will attempt to fill up the vacuum they naturally abhor by combing the one interposed from the honey of those above, and if there is a scarcity of honey in the stock hive it may be carried down into it. With a continuance of fine weather after the first manipulation with supers the mishap may not occur, but we should never risk the spoiling of fine supers by interposing empty ones between the full ones and stock hive. The hees should be admitted to supers by outside spaces only in stock hive, but all slides should be drawn in supers. Perhaps the foregoing will assist the uninitiated, and as the year advances I will give further instructions how to join the swarms and manage as a non-swarming hive the following year.—A LANARKSHIRE BEE-KEEPER.

#### BEEES ABANDONING A HIVE.

I THINK the cause of the bees deserting the hive as mentioned by "Plus" was in consequence of the loss of the queen; indeed, the bees did not abandon the hive, but died. I have had them apparently doing well until a late period, when they suddenly collapsed, and the invariable cause was loss of the queen, which had taken place some time previous, but the bees kept up an appearance for some time, and all apparently were going well to an inexperienced person, for as the bees diminish in number through death they show at the mouth of the hive; even a dozen bees make a great fuss at the mouth of a queenless hive, and some live on into the winter; indeed, I have had them exist in a state of defence well on into spring. I do not think bees desert their home so long as the mother remains, or if they do, as may happen through poverty in spring and when the colony is strong, yet there are means left of raising another mother in the stock hive, and so continuing its existence. These poverty swarms, I fear, are only a consequence of neglect on the part of the apiarian—neglect of feeding—but I have a tale to tell some day about such things.

I suppose "Plus" has no more hives, and there is none near, otherwise the hive would not have been found fairly filled with honey. Perhaps the queen has been lost late, which I hardly think, or the bees would have lived into spring. My bees do not tolerate a queenless hive long, for they allow no honey to escape carriage to their cells, all alike joining in the appropriation.—G. ABBEY.

BEEES AND THEIR ENEMIES.—At the last weekly meeting of the Astwood Bank Mutual Improvement Society. Mr. James Hiam gave "A Chat on Bees." Mr. Hiam contrasted the old system of bee-keeping with the modern, pointing out the superiority of the latter. To illustrate his points Mr. Hiam was provided with a full supply of apparatus. It was stated that the comb was made from an exudation from the insect's body, and not from the pollen, as erroneously supposed. Pollen was collected to make bee-bread for the feeding of the young bees. The first swarm carried on work till the autumn, and the best honey was from the stock of the first year. A contradiction was given to the old belief that in swarming the queen led the way and all her family followed. Certain bees acted as leaders and selected a branch to settle on; the other bees followed, and the queen, finding her family gone, followed. As regarded the comb, the advantages of having a prepared foundation were the saving of much of the bees' time, and a less expenditure of honey. It was said that the bees consumed 20 lbs. of honey while making 1 lb. of comb. It was incidentally pointed out as a remarkable provision of Nature that the cells were in an upward direction, that position being better calculated to hold the honey safely. Mr. Hiam also said that, as far as his experience went, the neighbourhood was a poor honey district. The modern methods of "taking honey" and feeding the bees were fully explained and illustrated. After stating that the bees could make a queen from a grub by feeding it with queen bread, Mr. Hiam referred to the enemies of the bees. Wasps were given as the chief—viz., *Vespa Germanica*, *Vespa vulgaris*, and *Vespa Britannica*. The nests of these wasps were exhibited, and very fine specimens they were. The tomtit was defended from the charge of being an enemy, and Mr. Hiam assured his audience this little bird was most harmless. As on former occasions, Mr. Hiam preferred to treat the subjects on the conversational style, answering questions as they occurred during his address, instead of a string at the end. Thus a pleasant evening was spent, which was brought to a close by the Chairman, the Rev. W. W. Robinson, proposing a hearty vote of thanks for his instructive and interesting lecture.

#### TRADE CATALOGUES RECEIVED.

Edmondson Brothers, 10, Dame Street, Dublin.—*Spring Catalogue of Seeds.*

James Yates, 29, Little Underbank, Stockport.—*Catalogue of Flower and Vegetable Seeds.*

Ralph Crossling, Penarth Nurseries, South Wales.—*Catalogue of Vegetable and Flower Seeds.*

Robert Craig, 90, Stricklandgate, Kendal.—*Catalogue of Vegetable and Flower Seeds.*

Viccars Collyer & Co., Leicester.—*General Catalogue for 1886.*

W. Crossley, 13, Vicar Lane, Leeds.—*Catalogue of Vegetable and Flower Seeds for 1886.*





\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**A Variegated Tropæolum (M. H.).**—We grew a variegated form similar to one you sent, some years ago for edgings in a flower garden, but the plant was dwarf in habit, and not "running" as you describe that you have raised. The leaves on the shoot sent are neatly variegated with white or cream, and it is certainly worth preserving.

**Cauliflowers and Broccoli for Succession (O.).**—Walcheren Cauliflower sown in February will come in in July and August; sown in early April heads will be produced in September, and a sowing made at the beginning of May will afford heads at Michaelmas onwards. Veitch's Self-protecting Autumn Broccoli should be sown in early April for affording a supply of heads in December onwards; and if at the same time be sown Cooling's Matchless, Leamington, and Lauder's Goshen Broccoli for a supply in spring up to May, there will be no difficulty in keeping up a succession.

**Choisya ternata (E. D. O.).**—You are slightly in error. This is not a new plant, but was introduced from Mexico in 1825. It has been much more extensively grown during recent years, and since it was found so well adapted in a small state for conservatory decoration. Plants are very extensively raised and grown on the Continent, planting them out, with Azaleas, in beds of sandy leaf soil in the open air and potting them in the autumn. They produce white flowers plentifully in the spring, and flowering plants are now to be seen in Covent Garden Market, but this is very early for them. *Choisya ternata* is very well worth growing for the purpose indicated.

**Chloride of Lime (S. M.).**—Chloride of lime, or bleaching powder, is composed of chlorine 36.23, lime 36.77. Exposed to the air, it is converted into chalk and muriate of lime, a salt which absorbs moisture from the air very powerfully. By this conversion it becomes a useful addition to soils; and, as it also gives out some chlorine gas, so offensive and destructive to insects, it has been suggested as a useful application to the land at the time of Turnip sowing. It is also useful as a disinfectant, and for sprinkling about stable floors to fix the ammoniacal fumes.

**Eucalyptus Leaves Drying (Mrs. H.).**—The rusty specks on the leaves appear to be dried resinous matter that has exuded from the cells and would naturally cause the foliage to wither. In the absence of any information as to the conditions under which the tree is grown we are not able to account for the peculiar state of the leaves. You do not say whether this is in a pot or planted out under glass or in the open air. This *Eucalyptus* produces more elongated and less glaucous leaves after being grown a few years, and this appears to be one of them, but it is in such a dried and imperfect state that we cannot determine the point. The large glaucous leaves produced during the early life of the tree are arranged with their upper surfaces to the sky, the lower to the earth; but the leaves that are produced afterwards are arranged more or less with their edges in those directions, and have a drooping and less cheerful appearance than the others. If you would like to give some further particulars, and send other specimens, we will readily give our attention to the matter.

**Camellias and Rhododendrons (J. R. W.).**—Planted in suitable soil, containing little or no lime, Camellias would certainly succeed well in an unheated house with a heavy roof facing the south, proper cultural attention being accorded the plants. In all probability such greenhouse Rhododendrons as *R. fragrantissimum*, *R. ciliatum*, *R. formosum*, and Countess of Haddington would also succeed, taking care not to accelerate early growth by keeping the house unduly close in autumn and during mild weather in winter, or the tender shoots might be cut by frost in the spring. Very much, however, depends on the district in which you are situated, there being nothing in your letter to indicate whether you reside in the cold north or sunny south.

**Eucharises—Tomatoes—Roses (W. W.).**—We should first establish the Eucharises in pots, then when quite healthy, plant them out in the bed over the hot-water pipes. We know of beds of Eucharises which have been furnished in that way and the plants now afford fine blooms abundantly. The Tomatoes you name are good, all of them giving satisfaction to different cultivators. Hackwood Park Prolific does not always set fruit well from the first formed flowers. Roses ought to do very well in the manner you propose, but we do not see the urgent necessity for trellises. They are well grown in the natural bush form for market purposes. We have heard the second variety you name is not a particular favourite in the London market, Niphetos and Madame Falcot being perhaps more largely grown for the sale of expanding buds than any others. The others we should not plant in large numbers at the first, but experimentally, increasing them if they promise to answer your purpose.

**Tuberose Flowers a Second Year (Tuberose).**—If you wish to try it, though we do not think it worth while, you will need to keep the plants in a

light airy position in the greenhouse and duly supplied with water until the foliage begins to turn yellow, when water should be gradually withheld. The roots will be so reduced in size as to require at least a year's growth before they will flower again, and then unless the culture has been superior you will not obtain blooms by any means equal to those from well-selected imported roots, whether they be Italian, American, or African. They are not in our opinion worth keeping for blooming a second time, especially as fine imported bulbs can now be purchased so cheaply.

**Petroleum for Dressing Vines and Peaches (Omega).**—Petroleum is not safe to use as a dressing in the usual manner with a brush to Vines or Peaches from the difficulty of keeping it mixed whilst the operation is being performed, for to mix with water it requires to be agitated—kept briskly stirred—which requires two persons, one to keep stirring the fluids while the other applies the mixture. If you, however, intend to use it as a wash and syringe it on, which is the best means of applying it, dissolve half a pound of soft soap in 3 gallons of boiling water, and when cooled to 120° add a quarter of a pint of petroleum and stir well with a broom handle until the petroleum is mixed with the soapy solution, and stir briskly whilst another person applies it to the Vines or Peach trees, being careful to wet them thoroughly in every part, on which the efficacy of this and all insecticides greatly depends. If there has been a great infection of insects repeat before the buds begin to swell, it being particularly efficacious against scale, mealy bug, indeed all insects, but requires to be used with care and judgment. If there be plants under the Vines they should be removed whilst the petroleum is being used, and it must not be used after the buds commence swelling.

**Compost for Vines (Idem).**—The top 3 or 4 inches of a pasture where the soil is medium-textured, light rather than heavy, taken off with its turf, should form the staple of the compost, or a ninth—i.e., nine barrowloads or cartloads to one of old mortar rubbish, and if the loam is deficient of sand add one of river sand, half a load of charred refuse or wood ashes, and half of charcoal; but the sand may not be necessary, and if the loam is not from a calcareous formation add a load of calcined oyster shells, and under any circumstances a sprinkling of crushed bones, which should not be less than half, nor more than a load. The less calcareous the loam the more bones may be used. Mix all well together, the loam being broken up roughly, and turn the heap over again, so as to insure the thorough incorporation of the mass. Such a compost will grow Grapes to perfection, and last a lifetime with proper surface dressing and good management generally.

**Culture of *Pancratium fragrans* (R.S.).**—This beautiful plant requires a rather high temperature and a moist shady position; a stove heat of 70° in summer and 60° in winter should be the minimum. Your plants should be shifted as soon as they fill their pots with roots. When the specimens are as large as required they should only be potted every four years. Employ a compost of two parts fibry loam, one part charcoal, and one part silver sand and sheep droppings. The loam must be broken into pieces about the size of pigeon's eggs, the charcoal the same; when all has been turned two or three times it should then be run through a half-inch riddle, and what remains in the riddle place in the pots. In potting the soil should be rammed very firmly. In the stove they should be close to the glass, but shaded from the direct rays of the sun, and they should receive a bountiful supply of water in the summer time both from the watering can and syringe. Even during the winter the syringe must be more freely employed than for most stove plants, particularly so if the stove in which they are placed is not furnished with vapour appliances. They can be placed in a cool conservatory when in flower, and supplied with a little weak liquid manure; it prolongs their flowering season, and also imparts a much finer waxy appearance to the flowers—moreover, they last much longer in a cut state when subjected to this treatment.

**Propagating Hardy Ferns from Spores (G. W.).**—Choose a pot which a bellglass will just fit within the rim, place a large crock over the hole, half fill the pot with smaller pieces, and on them place half an inch of moss; then fill the pot to the rim with the following mixture—viz., sandstone broken in all sizes from that of a grain to a hazel nut, sandy fibrous peat and yellow fibrous loam, of each equal parts, adding to the whole one-sixth of silver sand. Put over the surface a very small quantity of sifted soil, and make it firm by pressing it with the hand. Put on the bellglass, and if it fit closely on the soil it is all right. Remove it, and stand the pot in a pan in a rather shady but not dark part of the greenhouse, for what is wanted is a diffused though not a strong light. Give a good watering all over the surface through a fine-rosed watering pot, filling the pan with water. Now take the frond with the spore cases open, and, holding it over the pot, rub it with the hand on the under side, and a kind of brown or yellow dust will fall on the soil. You may scrape the spore cases from the back of the fronds, but if the dust fall so as to make the soil brown or yellow it is enough. Press the surface gently with the hand and put on the bellglass, taking care that it touch the soil all round. Keep the pan or saucer full of water, and give none on the surface except it become dry, which it never ought to do, nor will it if sufficiently shaded and the saucer be kept full of water. When the surface becomes green tilt the bellglass a little on one side at night, and as the soil becomes greener tilt it higher, giving a gentle watering now and then to keep the surface from becoming dry. When the plants have made two or three fronds gradually remove the bellglass, and pot off the Ferns when they can be handled safely. The pots may be placed in a pit or a shaded position in a greenhouse.

**Camellias not Expanding (Inquirer).**—We submitted the specimen you sent to a skilful cultivator of Camellias who has the charge of a very large and superior collection of plants, and the following are his remarks on the subject—"It is difficult to ascertain the cause of Camellia buds falling without knowing minutely the circumstances under which the plant is treated. The cause may be simple and brought about by the neglect of some small point in culture, or it may be a natural characteristic of the variety which the utmost care and best cultivation cannot remedy. The thick round-huddled varieties, such as the one sent, are far more liable to fail than those with sharper-pointed buds. Camellias such as Countess of Derby, Marguerite Guillon, and others that are similar in the bud often cast off the buds when they commence unfolding, even when the plants appear in the best possible health. Varieties that are at all subject to this, and receive even a slight check, not unfrequently cast their buds, when more reliable kinds would not be affected by any such cause. The slightest check through dryness at the



root, a very dry atmosphere caused by sharp firing during frost, or when firing has to be resorted to too quickly, excites them, and in consequence causes a number of buds to fall. One of the surest causes of failure was suggested last week—viz., not thinning out buds. Plants in the best possible health, if allowed to carry every bud they set, would soon be exhausted, and a greater per-centage of the buds in all probability would fall sooner or later. The number of buds a plant is capable of opening entirely depends upon the condition of the roots and the luxuriance of the plant. While the buds are swelling Camellias require more support than at any other stage, and if this is judiciously given a great number of flowers would expand which could not otherwise do so. The health of Camellias cannot always be taken from the appearance of the foliage, which in many cases appears healthy even when the roots are unsatisfactory. When in this condition the growth made is very short and weak, and more buds are set than the same variety would produce if in a robust condition. The soil about the roots in a wet, sour, unhealthy state will cause the buds to fall or decay. Again, if the young growth by any excitement advances early according to the forwardness of the buds the flowers seldom expand. Marguerite Guillon is very subject to this, as is also Weltonensis, a thick-budded white variety, very similar in the bud to the one sent."

**Names of Fruits.**—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. (W. N.).—Golden Pearmain. (W. Farrant).—1, Verulam. 2, Chaumontel. (J. A. L.).—1, Hollandbury. 2, Blenheim Pippin. 3, Not known. 4, Crimson Queenling. 5, Joséphine de Malines. 6, Belmont.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (M. H. S.).—Narcissus Telamonius plenus. (T.P.C.).—Asplenium fontanum.

#### COVENT GARDEN MARKET.—FEBRUARY 3RD.

MARKET quiet, with good supplies of foreign goods.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	1 0	3 6	Oranges .. .. .	100	4 0 to 6 0
" Canadian ..	10	0 12	Peaches .. .. .	per doz.	0 0 0 0
" Nova Scotia ..	10	0 12	Pears, kitchen ..	dozen	1 0 1 6
Cobs, Kent ..	per 100 lbs.	27 6 30 0	" dessert ..	dozen	0 0 0 0
Figs .. .. .	dozen	0 0 0 0	Pine Apples English ..	lb.	1 0 1 6
Grapes .. .. .	lb.	1 6 4 6	Plums .. .. .	1/2 sieve	0 0 0 0
Lemons .. .. .	case	8 0 10 0	St. Michael Pines ..	each	2 0 6 0
Melon .. .. .	each	0 0 0 0			

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	dozen	1 0 to 0 0	Lettuce .. .. .	dozen	1 0 to 1 6
Asparagus .. ..	bundle	2 0 8 0	Mushrooms .. ..	punnet	0 6 1 0
Beans, Kidney ..	lb.	0 6 1 0	Mustard and Cress	punnet	0 0 0 0
Beet, Red .. ..	dozen	1 0 2 0	Onions .. .. .	bunch	0 3 0 0
Broccoli .. .. .	bundle	0 9 1 0	Parsley .. .. .	dozen bunches	2 0 3 0
Brussels Sprouts ..	1/2 sieve	2 6 3 0	Parsnips .. .. .	dozen	1 0 2 0
Cabbage .. .. .	dozen	0 0 0 0	Potatoes .. .. .	cwt.	4 0 5 0
Capsicums .. .. .	100	1 6 2 0	" Kidney .. ..	cwt.	4 0 5 0
Carrots .. .. .	bunch	0 3 0 4	Rhubarb .. .. .	bundle	0 2 0 4
Caniflowers .. ..	dozen	2 0 3 0	Salsafy .. .. .	bundle	1 0 0 0
Celery .. .. .	bundle	1 6 2 0	Scorzonera .. ..	bundle	1 6 0 0
Coleworts .. .. .	dcz. bunches	2 0 4 0	Seakale .. .. .	per basket	1 6 2 0
Cucumbers .. .. .	each	0 6 1 0	Shallots .. .. .	lb.	0 3 0 6
Endive .. .. .	dozen	1 0 2 0	Spinach .. .. .	bushel	2 0 4 0
Herbs .. .. .	bunch	0 2 0 0	Tomatoes .. .. .	lb.	0 6 1 0
Leeks .. .. .	bunch	0 3 0 4	Turnips .. .. .	bunch	0 4 0 0

##### PLANTS IN POTS.

		s.	d.		s.	d.			s.	d.		s.	d.
Aralia Sieboldi ..	dozen	9	0	to	18	0	Ficus elastica ..	each	1	6	to	7	0
Arbor vitæ (golden)	dozen	6	0		18	0	Ferns, in variety ..	dozen	4	0		18	0
„ (common)	dozen	6	0		12	0	Foliage Plants, var.	each	2	0		10	0
Arum Lilies .. ..	dozen	12	0		18	0	Genistas .. ..	dozen	10	0		12	0
Azaleas .. ..	dozen	24	0		42	0	Hyacinths .. ..	dozen	6	0		9	0
Begonias .. ..	dozen	6	0		12	0	Marguerite Daisy ..	dozen	8	0		12	0
Bouvardia .. ..	dozen	12	0		18	0	Myrtles .. ..	dozen	6	0		12	0
Cineraria .. ..	dozen	10	0		12	0	Palms, in var. ..	each	2	6		21	0
Cyclamen .. ..	dozen	12	0		24	0	Pelargoniums, scarlet, doz.	6	0		9	0	
Cyperus .. ..	dozen	4	0		12	0	Poinsettia .. ..	dozen	12	0		18	0
Dracæna terminalis, dozen	30	0			60	0	Primulas, single, dozen	4	0		6	0	
„ viridis .. ..	dozen	12	0		24	0	Solanum .. ..	dozen	8	0		12	0
Erica, various ..	dozen	12	0		24	0	Spiræa .. ..	dozen	18	0		24	0
Euonymus, in var. dozen	6	0			18	0	Tulips .. ..	12 pots	6	0		9	0
Evergreens, in var. dozen	6	0			24	0							

##### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. 12 bunches	2 0	to 4 0	Lilies of the Valley, in clumps or pots, per doz.	15	0 to 30 0
Acacia (Mimosa), Fr., per bunch	1 0	1 6	Lily of the Valley, 12 sprays	0 9	1 6
Arum Lilies .. 12 blooms	5 0	8 0	Marguerites .. 12 bunches	6 0	8 0
Azalea .. .. 12 sprays	1 0	1 6	Mignonette .. 12 bunches	3 0	6 0
Bouvardias .. per bunch	0 6	1 0	Pelargoniums, per 12 trusses	1 0	1 6
Camellias .. 12 blooms	2 0	5 0	" scarlet, 12 trusses	0 9	1 0
Carnations .. 12 blooms	1 0	3 0	Poinsettia .. 12 b'ooms	4 0	8 0
Chrysanthemums 12 blooms	2 0	4 0	Roses (indoor), per dozen	3 0	9 0
" 12 bunches	9 0	18 0	" Tea, French .. dozen	1 0	2 0
Cyclamen .. doz. blooms	0 4	0 9	" red, French .. dozen	2 0	4 0
Epiphyllum .. doz. blooms	0 6	0 9	Spiraea .. .. 12 sprays	1 0	0 0
Encharis .. per dozen	4 0	6 0	Tropaeolum .. 12 bunches	2 0	3 0
Gardenias .. 12 blooms	6 0	18 0	Tuberose .. 12 blooms	1 6	3 0
Hellebore .. doz. blooms	0 6	1 0	Tulips .. .. dozen blooms	0 9	1 0
Hyacinths, Roman, 12 sprays	1 0	1 6	Violets .. .. 12 bunches	1 0	1 6
Lapageria, white, 12 blooms	0 0	0 0	" Czar, Fr., .. bunch	1 6	2 0
Lapageria, red .. 12 blooms	1 0	2 2	" Parme, French, per bunch	4 0	6 0
Lilium longiflorum, 12 blms.	9 0	12 0			



#### PROFITABLE FARMING.

INDUSTRY, thought, thrift, are the three conditions necessary to successful farming given in a notice in the "Land Agents' Record" of the successful working of some small farms in Sussex, of which an account recently appeared in the *St. James's Gazette*. Now, we happen to know the locality well in which the said farms are situated, and we may advert to some of the doings of the farmers to show how it is they are so prosperous in a time of adversity. Before doing so attention may be called to the fact that Sussex is coming to the front as a leading agricultural county. It has long been famous for its Southdown sheep and Sussex cattle. Sussex chickens, too, command high prices in the London markets, and some idea may be had of the magnitude of the poultry business when it is stated that in spring and summer 20 tons of dead poultry are sent off by rail weekly from Heathfield station, which is the centre of the great chicken-rearing district. The business done, too, in butter and milk is by no means inconsiderable, and this is owing very much to the manner in which the county is intersected by the Brighton railway system, by means of which the farms are brought within an hour or two of London, as well as of Brighton, Eastbourne, Hastings, and Tunbridge Wells. Travellers by the early trains hear the rattle of milkcans at every little station, and we have often while waiting for our train watched with keen interest the arrival of the farm carts, some with only one milkcan, others with two or three, all brought almost without exception by the farmers themselves, whose cheery greetings and brisk energetic action was totally at variance with the aspect of men borne down to poverty by hard times.

Very little attention is given to purity of breed in cows kept solely for milk. So long as a cow yields plenty of milk it matters little of what colour, size, form, or breed it may be, and most of the cows found on small farms are cross-bred in very haphazard fashion. Undoubtedly there is room for improvement here—not from a fanciful but profitable point of view. The "small farmer" requires a cow that yields a painful of milk twice daily—a medium-sized animal, of sturdy compact habit, that will fatten quickly for the butcher when it ceases to be valuable as a milker, in order that it may be disposed of quickly and at a profit. He wants no pedigree cows, but he certainly does want animals of the class indicated. How is he to obtain them? We know no special market to which he could turn to supply his wants, nor if there were such a market would he be likely to go out of his way to it. What is wanted is a better class of dairy cows throughout the country. There has been by far too much carelessness in this as in so many other matters in which farmers have an interest. A really good cow adapted for a special purpose is too often regarded as a wonder. Surely if general attention were given to an improvement in cows so as to render them more profitable deep milkers would be the rule and not the exception. Take any herd of dairy cows—say from two or three up to a dozen—and we may find one or at most two deep milkers. The others will be found to be decidedly inferior in point of quantity of milk. That this unsatisfactory state of things is an outcome of easy-going practice is undoubtedly true, yet how can the tenant of a small farm help himself here? We know some Sussex farms a few miles distant from a railway station where butter is the staple dairy article. On such farms there is a strong infusion of Jersey blood in the herd, and it is by no means uncommon to see several pure-bred Jersey cows.



Quality takes precedence of quantity in the milk yield of butter-making is to the fore. Good butter never has ever will lack purchasers at a profitable price to the producer, and the average price throughout the year for a really first-class article is about 1s. 6d. per lb. But to produce first-class butter we must have first of all a clever dairy-woman, and next a well-managed herd of cows selected specially for the purpose. The milk farmer may, and in point of fact does, use brewers' grains, green Maize, cattle Cabbage, Thousand-headed Kale, and roots without hesitation. Any article of diet calculated to promote and sustain a full and abundant flow of milk is good for his purpose, but the butter farmer having regard to delicacy of flavour in it must take especial care in feeding. He must eschew Turnips, Cabbage must be used with caution, and even green Maize can only be used freely when quite young. Everything at all likely to impart an unpleasant flavour to the butter must be kept from the cows.

Of really "safe" articles of food we may mention Rye Grass, Clover, Tares, Trifolium, Sainfoin, the best meadow hay, Carrots, Mangold Wurtzel, bran, and crushed Oats. Cabbage, Thousand-headed Kale, green Maize, and silage may be used in moderation. But no oilcake should be given to cows; they do not require it. It neither enriches the quality nor does it increase the quantity of the milk. We make special mention of this because of the reckless advice to give oilcake to cows so often seen in farming papers. Although we have wandered somewhat from the special doings of Surrey farmers, yet we have not forgotten either profitable or practical farmer, and we shall return to the subject next week.

#### WORK ON THE HOME FARM.

During the prevalence of severe weather, when work on the land is practically at a standstill, the value of horse gear as a motive power becomes fully understood; but such gear should always have a roof over it so that the horses may have shelter. Then we can get on with our chaffing, pulping, grinding, pumping, and, in fact, all the ordinary work done by agricultural machinery, instead of having the horses idle in the yards. A kibbling mill is of much value in crushing corn, so that it may be easily eaten and thoroughly digested; without it much corn is liable to be passed through the stomach undigested. There are inferior mills in the market which do the work so slowly as to be comparatively valueless. A really good kibbler crushes corn quickly, whether turned by hand or steam. We have one on a small farm which requires two men to turn it easily that on wet days turns out a large quantity of corn crushed ready for consumption, and we prefer so finding employment for the men rather than run up grinding accounts at a miller's. The pastures have been covered so deeply with snow that we have had to maintain the sheep entirely on dry food and roots. With several hundred ewes and some 300 hoggets to feed we have heavy demands made upon our stores just now. Pea straw, hay, mixed chaff of hay and Barley straw well salted, crushed corn and cake, with a few roots, afford enough variety, and the sheep are in excellent condition. The last batch of old draught ewes were sold about a week ago. We purchased these ewes in autumn at an average price of 25s. apiece, and they realised an average of 45s. apiece, some going as high as 49s. This has been a profitable affair, much good having been done to the land by folding; but the remarkable improvement in the condition of these sheep is doubtless owing to lodge shelter, and to our practice of putting them in a snug yard in inclement weather. We mention this matter as one of the trifles which contribute to success in farming, and we may add that our speculation in purchasing pigs in large numbers to consume inferior corn answers well. Pigs bought in a few weeks ago at 15s. 6d. each are now being sold at 36s. 6d.—not all at once, but as they reach a certain standard of excellence. Plump little porkers they are, and we have the satisfaction of knowing that our discoloured Barley makes good pork, and is profitable to us.

#### REVIEW OF BOOK.

*Permanent and Temporary Pastures.* By MARTIN J. SUTTON. London: Hamilton, Adams & Co., Paternoster Row, 1886.

An exhaustive practical work upon pastures, bringing the subject well up to date, giving the latest information upon the best Grasses and Clovers, with particulars of ensilage, has been urgently needed, and it is therefore with especial pleasure we welcome the admirable production now before us. Some time ago Mr. Martin Hope Sutton, the founder of the Reading firm, contributed an essay on the subject of "Permanent Pastures" to the *Journal of the Royal Agricultural Society* (vol. xxii., part ii.), which was subsequently republished in pamphlet form, when it ran through eleven editions. In 1880 Mr. Martin J. Sutton undertook at his father's request the revision and enlargement of the essay, and in

the improved form two other editions were disposed of, numbering in all 20,000 copies, as we are informed in the preface to the present work. As the subject has assumed so much importance in recent years, it was thought that "a more comprehensive treatment" should be afforded it than could be done in a pamphlet, and the result has been the production of the work under notice. In the preparation of this Mr. M. J. Sutton acknowledges the assistance of Mr. W. Carruthers, Sir J. B. Lawes, Bart., Dr. J. H. Gilbert, Dr. Maxwell T. Masters, Mr. F. G. Baker, Dr. J. A. Voelcker, and others in several departments of the book, whose work gives it most valuable scientific and practical support.

The book comprises 121 pages of text, dealing with principal practical operations connected with Grass land, chapters being devoted to "The Extension of Pastures," "The Drainage of Grass Land," and "Cultural Preparations." An important department is that appropriated to "The Selection of Grasses and Clovers," in which are given full instructions respecting the uses and requirements of the leading species and varieties employed for pastures, a large amount of valuable information being conveyed in these pages. Then follow chapters on "Sowing Grass Seeds," "The Management of New and Old Pastures," "Hints on Haymaking and Grazing," "Ensilage," "Breaking up Old Grass Land," and "Temporary Pastures."

The value of the work is greatly increased by the addition of twenty-three beautifully executed chromo-lithographs representing the principal pasture Grasses and Clovers. For life-like accuracy of detail we have seen none to surpass and few to equal them. They are accompanied, with two or three exceptions, by botanical descriptions and analyses of the Grasses, both dried and in a fresh state, showing at a glance their relative importance as fodder.

The book is printed in bold type, on excellent paper, is neatly bound in dark cloth, and will form a useful addition to any farmer's library.

#### OUR LETTER BOX.

**Potatoes as Food for Cows (R. H.).**—Potatoes are not to be regarded as suitable food for milch cows, either to improve the quantity or quality of the milk. They should never be used in a raw state; cooked, pounded into a mass, with the addition of enough salt to render them palatable, they might be used in moderation, but we cannot recommend such an article of diet for cows. Our own plan is to have Potatoes cooked and given to pigs with skimmed milk and butter milk. Pigs so fed grow fast, and fatten so quickly that they require no corn. Whenever there is a dairy for butter-making enough pigs should be kept to consume the stale milk. If you have not tried a plan that is so clearly based upon the principle of sound economy, pray do so, and you will no longer be at a loss how to turn your surplus Potatoes to profitable account. We regret that a little delay has occurred in the publication of this reply.

**Sheep with Swollen Lips (J. M.).**—Your sheep are suffering from blain, or gloss anthrax. It is probably owing to the rarity of this disease that the cause of it is not always clearly understood. In your flock it is probably owing to an undue amount of exposure to cold and wet. The remedy is, to put them at once into a warm dry fold, and to keep them there; if you can spare them a clean well littered yard and lodge so much the better. Open the abscesses with a lancet to let out the humour, wash the swollen parts and the mouth with warm water, and afterwards apply a solution of chloride of lime, a drachm to a pint of water. Repeat this once or twice daily, as long as may be necessary. In severe cases there will be much debility, and the animals should have a liberal diet of oatmeal gruel; all of them should have plenty of dry food in troughs, consisting of hay, chaff, crushed oats, bran, and Waterloo round cake also crushed. A few minced roots of Mangolds, Swedes and Carrots may be mixed with this food advantageously. If any of the sheep show loss of appetite a tonic given daily of a drachm of powdered Gentian root and half a drachm of powdered ginger in a little water does much good.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.


DATE.	9 A.M.					IN THE DAY.				Rain
	Barome- ter at 39° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min	In sun.	On grass	
1886.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
January.										
Snnday ..... 24	29.472	33.1	32.9	E.	35.0	38.0	31.8	48.8	29.4	0.266
Monday ..... 25	29.344	35.8	35.8	E.	34.9	39.3	29.7	42.6	25.7	0.043
Tuesday ..... 26	29.521	35.3	33.1	S.W.	35.0	43.8	34.2	57.2	29.8	—
Wednesday ..... 27	29.853	37.1	36.7	E.	35.2	42.3	35.1	50.3	30.2	—
Thursday ..... 28	29.922	31.3	31.3	Cal'm	35.0	43.4	29.2	64.2	23.0	—
Friday ..... 29	29.689	36.8	34.9	E.	35.2	41.7	31.1	48.6	28.2	0.063
Saturday .... 30	29.767	36.6	34.5	S.	35.6	44.8	31.8	53.9	26.2	0.211
	29.650	35.1	34.2		35.1	41.9	31.8	52.2	27.5	0.583

#### REMARKS.

24th.—Snow till noon, then fair and slight thaw, but frost at night.  
 25th.—Foggy, with showers.  
 26th.—Fine bright winter day.  
 27th.—Fog early, fine and bright afternoon, fog again in evening.  
 28th.—Thick fog till 11 A.M., houses invisible at 100 feet, fine after.  
 29th.—Dull, with frequent showers; clear after 10 P.M.  
 30th.—Cloudy morning, rainy afternoon, with wind.

Damp, rather warmer than the previous week, but still below the average temperature.—G. J. SYMONS.





## COMING EVENTS

11	TH	Royal Society at 4.30 P.M.
12	F	Quekett Club at 8 P.M.
13	S	Royal Botanic Society at 3.45 P.M.
14	SUN	6TH SUNDAY AFTER EPIPHANY.
15	M	
16	TU	
17	W	Society of Arts at 8 P.M. Meteorological Society at 7 P.M.

### THE NURSERY AND SEED TRADE ASSOCIATION

**W**E last week referred to the annual meeting of this Association, the particulars of which did not reach us in time for insertion. From the Annual Report, which was read and adopted, it appeared that in 1884 it was proposed to wind up the Association, as the principal members had withdrawn their support in consequence of the want of energy on the part of the executive; but as several members were of opinion that an Association was a necessity to the trades, it was decided to resuscitate it, and to amend the Articles of Association, enabling members to join in January or July of each year, and that the members should give mutual information to each other through the Secretary concerning the stability of persons with whom they had business transactions, and thereby obtain reliable information which could not be obtained through the channels of ordinary Trade Protection Societies; and that the operations of the Association since its resuscitation had been very satisfactory, and the Association was considered to be on a satisfactory basis, and was being energetically worked, and many foreign members of the trade who sent goods to the United Kingdom had availed themselves of the advantages afforded by the Association. The report also showed that the Secretary and Solicitor had received and paid over to the members debts to the amount of £1276 6s. 10d., which they had treated as bad, but afforded the officers of the Association an opportunity to recover, and this amount had been paid to the members without costs, excepting a small commission. The balance sheet which was read was also very satisfactory, and a balance of £48 7s. 5d. was carried forward to the present year.

No more conclusive evidence of the usefulness of the Association could well be afforded than the above record of its work during the past year; and it appears to us that it would only be a mere matter of prudence for nurserymen and seedsmen generally to take advantage of the facilities that the Association offers in the conduct of business. The remarks of the different speakers at the meeting prove the necessity of co-operation on the lines indicated in the satisfactory conduct of a great industry; and it is abundantly evident that there has been a lack of enterprise and effort somewhere, or why the suggestion to "wind up" an Association which, under sound and energetic management, is calculated to be of wide benefit to its members? In the event of a possible failure, or the existence of circumstances of an undesirable character, it is only natural that an endeavour should be made to find a scapegoat. In this instance the horticultural papers have "not stood by the nurserymen as they ought." In advocating the claims of this particular Association the "papers" have not perhaps taken a prominent share. But why is this? We can speak for ourselves, and say that we have never hitherto had a "report" of the Association sent to us for publication, and have never been requested to direct attention to the existence of the organisation; but, on the contrary, we have had the publications of the Association handed to us privately for

private perusal alone. It is not in this way the claims of an Association can be advanced in the most effectual manner. There cannot be a doubt that the interests of trade horticulturists may be far more adequately maintained by organisation than isolated individual action on the various points to which reference was made at the meeting, and we shall be a little surprised if the Association in question does not become more popular, and its influence and usefulness be materially increased if more prominent attention is directed to the facilities it offers to its supporters.

As intimated last week, Mr. N. N. Sherwood, the President, took the chair at the annual meeting. Mr. Harrison of Leicester, in proposing the toast of the officers and Committee, referred in detail to the report, and thought the executive had in a short time done wonders. They had rescued out of the fire the burning brand and saved the Association from collapsing, and the condition in which it had been now brought forward was most satisfactory. Mr. A. H. Clarke, the Treasurer, in responding, referred to the state in which the Association was allowed to drift, and that when the Committee met there was an *arrière pensée* in their minds that it should not be allowed to break up, but should do all in their power to resuscitate it and make it a success; but as a good deal had had to be done the Committee had worked very hard to get the Association into its present shape. He asked those who were not on the Committee to wake the Committee up if necessary, and it would be found that if they fell short in any respect they would answer to the whip.

Mr. William Paul, who also responded on behalf of the Committee, thought that too much praise could not be bestowed upon the Solicitor and the Secretary for what they had done to resuscitate the Association; but although it had done a great deal in the way of giving status reports and collecting debts, that was only a small part of what the Association ought to accomplish. He thought more ought to be done for the purpose of uniting the members of the nursery and seed trades. Singly their power was small, but united it would prove for the good of both. There was a great number of intelligent people in the trades. Horticultural periodicals were now represented by nine weekly papers, besides those issued monthly; but these did not exercise the influence they might if the nurserymen and seedsmen were a more united body, in which case they might retain their rights, which they were not then doing. The speaker referred particularly to the question of rates and income tax, and stated that nurserymen were paying far more than they ought to be called upon to pay, and instanced this by what occurred on a re-valuation of his parish being made for the purpose of rating, on which occasion he (the speaker) appealed to the Quarter Sessions and succeeded in reducing the amount of rating by one-half. If this question had been taken up by such an Association as the present one a principle would have been established which would have affected nurserymen all over the country, but as it was only an isolated case it could not be utilised on behalf of others. He also referred to the question of railway rates, which required consideration, and which could only be efficiently dealt with by a large body engaged in the nursery and seed trades with any hope of bringing the same to a successful issue.

Speaking as a contributor to the horticultural papers, he was of opinion the latter had not stood by the nurserymen as they ought to, but he thought if they made their power felt as a body not only they, but the trade itself, would find it to be of great service. He referred to the rules of the Royal Horticultural Society, which precluded nurserymen from being on the Council, and thought that if this matter were properly represented by an Association of nurserymen such as the present an alteration would be effected.

Mr. Hooper proposed the health of Mr. Butcher, the Solicitor to the Association, and in responding that gentleman pointed out that the Articles of the Association were sufficiently large to enable the matters referred to by Mr. Paul being taken up by the Association, and that if those engaged in the production of seeds and flowers thoroughly united themselves as a body they would be sufficiently strong to have a voice in the Chamber of Commerce upon the matters considered by that body. He advocated legislation in the interests of nurserymen, giving them the right to demand compensation on expiration of tenancy from their landlords or succeeding tenants in respect of buildings and improvements to the land.

Mr. Veitch proposed "Success to the Nursery and Seed Trade Association," to which Mr. Sherwood, the President, replied in suitable terms. Other toasts followed, and a very successful meeting was brought to a close.

Now that our co-operation has been requested we readily give prominence to the claims of the Association in question to extended support, as we yield to none in our desire to see all the branches of trade in connection with horticulture in a prosperous condition.

### TREE OR PERPETUAL FLOWERING CARNATIONS.

In the garden few flowers are more cherished than the Carnation; it is always in request for its charming fragrance, and never more than during this dull season. To have them in winter requires only a favourable position outdoors during the summer



and autumn, a little attention in sticking and tying, and needful supplies of water. They are of easy culture, requiring no more skill than is needful to grow softwooded plants. To insure good plants the chief thing is to propagate early, from the beginning of February to early March, affording plants from cuttings by November that will bloom until those in the open ground come in. The short stubby side shoots are the best for cuttings, slipping them off and merely making any raggedness at the base smooth with a sharp knife, or if slipped off carefully this is not necessary. They should be dibbed round the sides of pots inside, varying with the number of cuttings, or most conveniently into 5-inch pots, leaving them about an inch apart. Employ fine soil—loam three parts, one part leaf soil, and a similar proportion of sand, with a half-inch layer of silver sand on the top of the soil. Drainage may occupy one-third the depth of the pots. Water after to settle the sand about the cuttings, and plunge in a gentle bottom heat of 70° to 75°, and top heat of between 55° and 65°, but the lower one is best, as it is rooting not top growth that is sought, for the sturdier the plants are kept the better. Place a bellglass over the pots with the edges resting on inverted 3-inch pots, so that evaporation will be to some extent lessened, and they will get sufficient air to prevent damping.

When the cuttings are rooted remove the cover and stand the plants on shelves near the glass, but in the same temperature until the pots are fairly filled with roots, and then pot singly, the smaller ones into small 60's, and the strongest in the larger 60's. The compost should consist of good turfy yellow loam three parts, a part in equal proportions of well-decayed manure, and about a sixth of sharp or river sand. Pot firmly, but use the fingers only. The plants after potting may be returned to the forcing or warm house and placed near the glass, the most suitable temperature being 50° to 55° by artificial means. In this they will make steady growth, and there they may remain until they are moved to cold frames about the middle of April, having protection at night by mats in frosty weather, and gradually harden them off so as to have them fit for standing outdoors by the middle of May. Repot the plants as the roots advance, not allowing them to become rootbound before doing so, at the same time the pots should be filled with roots. Give the final potting early in July at the latest, and preferably early in June. Use 5 or 6-inch pots for the smaller plants and weaker-growing varieties, and 7 or 8-inch pots for the largest and most robust sorts. A neat stick with the main shoot tied to it and the side shoots looped toward it so as to form a sort of pyramidal specimen is all that is needed in the way of training. Afford a sunny position outdoors, open, but sheltered from winds, and a bed of ashes, in which the pots may be partially plunged. After the pots are filled with roots liquid manure may be given at every alternate watering. By October there will be plenty of flower buds in an advanced state, and the plants should be transferred to a low, light, well ventilated structure with a temperature of 50° by artificial means, when they will give an abundance of blooms successional through the winter. They do not like damp, and gentle heat is necessary to enable them to open their buds in winter. It is deficiency of heat that causes the Tree Carnation to be considered non-winter-flowering by some growers.

Those wanting plenty of blooms in spring should insert cuttings early in March. Most people have a hotbed then, and this will answer, only it must not be too warm or the cuttings will be drawn before they are well rooted. When sufficiently rooted remove them to a greenhouse, and being hardened to that temperature pot them and grow them on in cold frames until May. The summer treatment is the same, only the plants may have their largest pots as late as early August, and in autumn or before November they should be placed in a light airy greenhouse. Supply water carefully, being cautious not to give too much. Freely ventilate on all favourable occasions, as this will harden the growths, and on that the flowering in a great measure depends. From the middle of February onwards weak liquid manure once a week will help the plants greatly.

Another plan is to turn the plants outdoors as soon as the flowering is over, and layer the strong growths in 4-inch pots. These layers will be well rooted in about six weeks, when they are detached from the parent and stood in the shade or under a north wall for a few days, in which position they feel no check and make roots rapidly. The pots being well filled with roots, shift the plants into pots a couple of inches larger in diameter, but any plants layered in 3-inch pots should only have the 5 inch size. Stand them in an open situation, and house by or before November. Plants raised in this way are very dwarf, and give a number of useful flowers in spring and early summer, but I do not find them so floriferous as plants raised by the two previously named methods.

A fourth plan, and one that with the raising of plants from layers, commends itself to those not having only a handlight or cold frame and a greenhouse. This is to insert cuttings under handlights as soon as the flowering is over, or about the middle of July; placing in about 3 inches depth of fine soil and a surfacing of silver sand. The cuttings should be cut immediately below a joint and have leaves removed from it with a sharp knife, and if the cuttings have one joint and the centre leaves it is sufficient. Insert them up to the centres, but not so as to bury the centres, and press the soil firmly, giving a gentle watering, and the handlight being put on keep them close and shaded from sun. They will root slowly but surely, and in autumn can be lifted and placed singly in 3-inch pots, in which they may be wintered in cold frames. In spring they should be repotted and have their largest pots by July. Six, seven, or eight-inch pots will not be too large. Any disposition to flower must be at once checked prior and up to the beginning of August, after which allow all to advance that shows. Although we get large plants by this method they are not proportionately as floriferous as the smaller and early-raised plants; indeed, it is the starting of young plants or raising them early which gives them their tendency for early or winter flowering, for if treated as border plants they do not flower until the ordinary time in summer, but unlike the show varieties they continue flowering outdoors until a late period, and on that account are valuable, especially if grown in a sheltered situation.

I have tried, but do not recommend keeping the plants after the first year, hence young plants should be raised annually, as affording the finest flowers in greater profusion. Insects are not much trouble; indeed, the only ones attacking these plants severely are aphides, which soon succumb to fumigation or when outdoors to syringing or dipping in tobacco water or some approved insecticide.

The varieties are becoming very numerous, but I consider the following some of the best:—*Scarlet*—Field Marshal, M. Baldwin, Duke of Albany, and Worthington Smith. *Red*—Lucifer, Leon Lambertye, and Zouave. *Crimson*—Mrs. Keen, Sir Evelyn Wood, and The Moor. *Purple*—Gladiateur, Duke of Wellington, and Ruby. *Maroon*—Rubens, Phoenix, and Brunette. *Rose*—Rose Perfection, Madame Alégatière, and Seraph. *Pink*—Miss Jolliffe, Laura, and Le Favori. *Yellow*—Mrs. George Hawtry, Andalusia, and Pride of Penshurst. *White*—Snowball, Princess Stephanie, and The Queen. *Fancy Varieties*—Thomas Wallis, scarlet, striped dark red; Whipper-in, scarlet, dark stripes; Enchantress, pink, flaked purple; Iona, rose, flaked and spotted carmine; Memnon, buff, striped rose and orange; Volunteer, scarlet, striped maroon; Hamlet, buff, striped rose; Cassandra, buff, edged scarlet (Picotee), and Sunbeam, creamy white, edged pink (Picotee).

I wish to close with an especial note on Souvenir de la Malmaison, blush white, and the pink form (syn. Lady Middleton) of that grand variety—viz., those wishing to have a quantity of flowers to send to town in May and early June should have a house full of these, they coming in most acceptable, and are a relief from the stereotyped Gardenia.—G. ABBEY.

#### LIME FOR VINE BORDERS—ANALYSIS OF SOIL.

THE communication by "A. L. G.," on page 62, may be attributed to one of two causes—either that he is anxious to air his knowledge of elementary chemistry, or for gaining information. If the former, I wonder that he did not tender us more of his knowledge on the subject of liming, or state definitely his reasons for differing from "A Thinker" on the Gros Colman question. If the latter, his method of eliciting information may not be one of the best.

I should be very sorry to infer that "A. L. G." tried to misrepresent what I wrote on pages 37 and 38, but the least that can be said is that his remarks on the subject, and quotations from "Warrington's Chemistry of the Farm," will serve to confuse those for whom my article was penned. Your correspondent might not allow his Vines to fail to colour through deficiency of lime in the borders, neither have I advised such a course, but there are thousands who grow a house or more of Vines who do not possess either a knowledge of elementary or analytical chemistry. The chief soil, of which many Vine borders are composed naturally contained no lime, and the quantity incorporated when the border was first made would sooner or later fail to prove beneficial to the Vines; on the contrary, in a few years this substance would become deficient, and the crops prove unsatisfactory. My object was to help those, if possible, who have not, through no fault of theirs perhaps, the same amount of knowledge that "A. L. G." appears to possess. Many, and I believe there are many, may be labouring to colour their Grapes



who do not know that the cause of their failure is due to the cause I tried to point out.

I do not possess "Warington's Chemistry of the Farm," but expect that the quotations given from it apply largely to agricultural soils, and what is the difference between these and the soil of a Vine border? What is the per-centage of humus contained in the former compared with that in the latter? If the analysis of the ashes formed by burning the wood of Vines is any guide, it cannot well be disputed that lime is an indispensable article of food for them, as well as many other plants. If this is the case, then lime can be applied annually or periodically, as I explained, with beneficial results to them. It is indeed questionable if agricultural soils contain one-third, or even one-fourth, the humus of a Vine border. It is a very common practice to apply heavy dressings of manure annually, and of what benefit will this prove to the Vines when there is already abundance in the border that they cannot take up or use? To add animal or vegetable matter to a border of this description is only adding fuel to the fire, and this is being done every year. But if lime was applied, would it not set some of this mass of food that is lying dormant at liberty, so that it could be assimilated by the Vines for their support and that of the crop? I think it will clearly be seen that I only advised a certain percentage of lime to be applied annually, and at the same time as much manure as would restore the amount of humus extracted or diminished. I am aware that it would be simply madness to apply lime to a Vine border already poor and containing practically little or no humus. Its power of decomposing fibre and other vegetable matter quickly had not been overlooked; on the contrary, I was aware of this, and for this reason I advised its use so that the fibry loam and manure applied with it annually could soon be reduced to such a condition that Vines could utilise it for food in the manner they most desired.

Now to turn to the kitchen garden to which I alluded, not a mere Cabbage bed, which had been heavily manured, and was so full of humus that plants would not grow in it, either Cabbages or any of the Brassicas. Two previous gardeners had condemned this garden as worn out, and they appealed for a new one. The dressing of lime brought this garden into a fertile state; not a mere sprinkling of lime, but it was applied at the rate of 250 to 300 bushels per acre, if that amount was not exceeded, I cannot now tell exactly without looking back for vouchers, which would give me considerable trouble. This was applied seven and eight years ago, and lime has since been applied, in fact, a little annually, but not in such large quantities, and the most beneficial results follow its application for the productiveness of the garden is increased by its agency. The amount of humus in the best of agricultural soils cannot be above one-third what it is in highly cultivated kitchen gardens, neither is half the produce taken from the land. From my garden I require and get two crops from the great part of it annually, and when this is done there is naturally something taken out of the soil, and I believe in putting something in. By this means, even if lime is freely and periodically applied, the fertility of the ground is not destroyed. It would be, I readily admit, if we applied lime and took all out of the soil we could get, and put nothing back again. I am afraid there is much agricultural land exhausted of nearly all the humus it contained without the application of lime to assist. On the best managed farms what is the amount of manure applied in comparison to what is the case in a garden, and therefore it is naturally less rich in humus. The renovation of the garden in question and its fertile state I attribute to a free and judicious use of lime. With the exception of growing Parsley and Carrots, no one need desire a better piece of land.

I noticed someone asking in the Journal what to do to prevent "clubbing." My advice is to give a thorough good dressing of hot lime a short time before the ground has to be cropped in spring. This proved an effectual cure in the garden to which allusion has been made. The best way of applying it is to dig deeply or trench the ground, and then spread it on the surface after it has fallen to dust, then dig it in. If the ground has been heavily manured none need be applied unless on the surface of the soil to be cast towards the bottom of the trench as the operation of trenching or digging proceeds.—WM. BARDNEY.

INDIVIDUAL.—Surely for a writer who freely criticises others "Thinker" is too sensitive, and I am as much surprised as sorry that he should for one moment considered that my story was told as in any way applicable to him. I merely told it by the way, and if he reflects for a moment it will surely strike him that if I meant to imply that he corresponded to the burly "Liberator," I must have compared my excellent friend, Harrison Weir, to the Dublin "fish-fag!" It could have no point at all in reference to the matter, for the point was that Dan's antagonist no more understood the

meaning of "individual" than if, in reference to the element from whence her wares were taken, he had called her a "palufofboios thalasse." I must utterly disclaim being regarded as a "facetious man;" on the contrary, I am regarded as rather a staid individual, who relishes a joke even when told against himself.—D., Deal.

### SCUTELLARIA MACRANTHA.

THOUGH less showy perhaps than some other of the Lipworts, many of the Skull-caps are very ornamental plants, and none more so than the *Scutellaria macrantha* represented in fig. 18.

This is a native of Eastern Asia, and appears to be widely spread extending, according to Sir William Hooker, to the great wall of China where it was detected by Sir George Staunton. As might have been anticipated, it is perfectly hardy and of easy cultivation and increase. It is an herbaceous perennial, scarcely exceeding 1 foot in height, with angular, branching stems, and opposite, entire, lance-shaped leaves, and forming when sufficiently strong a spreading bushy tuft. The very handsome purple flowers are produced in long terminal spikes, and are larger



Fig. 18.—*Scutellaria macrantha*.

than those of any other species known to us. The plant seeds freely, and may be readily increased by these means, as well as by division of the roots, or by cuttings under a glass, either in the border or frame. Seedlings usually flower the first season if sown early, and should be transplanted from the seed pan while young, as they will suffer less from removal than at a more advanced state of their growth, when their tap-like root is more developed.

With regard to soil, a mixture of good loam and decayed leaves or manure appears to best suit this plant, though it will probably flourish in any good garden soil; for many hardy plants, like individuals, possess the happy faculty of adapting themselves to situations of diverse character, provided that they are not of too extreme a nature.

It disappears so entirely during the winter months that it is advisable to mark its place in the border by a label of some description, for much injury is often done to plants of a similar character when the borders are dressed in spring, from ignorance of the precise locality of their roots.

When first introduced this plant was recommended by Sir W. J. Hooker as a desirable one for planting in masses, and now that its seeds are readily procurable at a reasonable rate, its employment for this purpose may be fairly made the subject of experiment, as its flowering season is of considerable duration. The effect would probably be enhanced by planting it in association with the yellow-flowered *S. orientalis*.



talus, a plant of similar habit and height. It must, however, be conceded that neither of these plants can vie in brilliancy with the plants usually employed in bedding, and their proper place is perhaps the front row of the mixed border.—W. T.

## HINTS ON THE CULTIVATION OF HARDY FRUIT TREES.

At the last monthly meeting of the Lee, Lewisham, and Blackheath Horticultural Society, held on January 29th in the Working Men's Institute, Old Road, Lee, Mr. Pavey, gardener to W. Watkins, Esq. (of the firm of Howcroft & Watkins, the well-known London seedsmen), Eltham Road, Lee, read an excellent paper entitled "A few Hints on the Cultivation of Hardy Fruit Trees," in which he very ably described the various methods of planting, training, and pruning, and the best modes of destroying insects, &c., injurious to fruit trees.

He dealt with the important subject of planting in a thoroughly exhaustive manner, laying particular stress on the necessity of providing good drainage for the planting stations, especially on cold, damp, and heavy subsoils. To the absence of good drainage he attributed the chief causes of failure in growing fruit in many gardens, rightly stating that to this cause was due the existence of canker, especially among Apple trees. He advocated the thorough preparation of the planting stations by giving ample space to each tree, and the great importance of forming in the case of clay subsoils a good hard bottom by means of concrete, thereby preventing the formation of tap roots and the roots generally from penetrating into an uncongenial subsoil. Mr. Pavey had many years ago experienced great difficulty in cultivating fruit trees in the garden of which he still had charge owing to the uncongenial character of the soil, but after he had set to work and prepared new stations on the principles recommended no difficulty occurred, seasons permitting, in obtaining excellent crops of fruit with fine healthy and vigorous trees.

The distinction between the positions (culturally) of market and private growers was pointed out, the former having the advantage of pitching their tent, so to speak, on just the right kind of land suitable for fruit-growing; hence, as a general rule, market growers were able to produce greater crops than private growers; whereas the latter have to be content with whatever position and soil builders—suburban especially—choose to erect the houses on. Here, then, lay the necessity of adopting such artificial means of assistance as would conduce to ultimate success.

Another important point mentioned was the advisability of planting and growing fruit trees in quarters to themselves instead of (as in the usual way) their being planted round the margins of the walks; urging as a reason for adopting this plan that when planted in quarters the blossom was better protected from injury in early spring and the roots from being interfered with during the important period of growth. On this point particularly most experienced cultivators will agree that considerable injury is often done to the roots of fruit trees during their season of growth by the unavoidable disturbing of the soil in planting and lifting vegetables when the trees are growing round the quarters of the vegetable garden. Where the proposed, and indeed often adopted, plan of growing fruit trees in quarters to themselves can be carried out it will be found highly advantageous. The kitchen garden will, perhaps, not look quite so well furnished without its marginal trees, but where it is a question of abundance of fruit in preference to effect there the quarter system should be adopted without hesitation.

Next came the important subject of summer and winter pruning. Mr. Pavey expressed his disapproval of summer pruning as generally practised, believing that the constant practice of pinching and stopping the growths had an injurious effect upon the progress of the fruit during its development. His idea is that when a tree is in full growth removing a portion of its growth seriously checks the flow of the sap, and thus prevents that healthy free circulation which is so essential, he thought, to the well-being of the tree. All that would be done by way of summer pruning to cut entirely away all weakly growing shoots, but not by any means stop the stronger-growing ones, leaving these to act as the lungs of the tree until growth had quite ceased, and then prune in the usual way. Much, however, expressed under this heading did not meet with entire approbation from some of the members present.

Root-pruning judiciously carried out was considered to be an excellent remedy for reducing gross-growing trees to a fertile state. He did not, however, advocate doing too much in this way at a time, doing one half of the tree the first and the other the second year.

Then a few interesting remarks were made on some of the insects affecting fruit trees and the best modes of eradicating them. For destroying American blight he advised 8 lbs. of softsoap to be dissolved in 4 gallons of boiling water, adding a wineglassful of paraffin, and when cool thoroughly scrubbing the affected trees with it.

Finally attention was drawn to the advisability of planting fruit trees in the shrubberies of small gardens instead of so many Almonds, Horse Chestnuts, and Hawthorns. He strongly urged the adoption of this plan on the score of utility, as not only would their blossom prove quite as effective in spring, but there would be the advantage of a good crop of fruit as well.

There is certainly no reason why a few of our hardy fruits should not be grown as recommended, because they would prove not only ornamental but useful, and this is a great desideratum in small gardens of limited dimensions. A gentleman, well known to the writer of this report, and who possesses excellent taste in landscape gardening, has often remarked how beautiful and appropriate the Apple and Pear would be grouped with other trees in our shrubberies, and this gentleman has carried it out in practice.

A discussion followed the reading of the paper, in which several of the members took part, agreeing for the most part with the principles advocated, and at its close a hearty unanimous vote of thanks was awarded to Mr. Pavey. This Society has only recently added to its sphere of usefulness and attraction these social meetings, which at present augur well for its future prosperity. Mr. Pavey only dealt with hardy fruit in the open quarters; those on walls are to form the subject of a future paper. The next paper will be read by Mr. Fox, gardener to Mrs. Penn, The Cedars, on "Forcing Strawberries."—T. W. S.

## MIDWINTER ORCHIDS AT CHELTENHAM.

At this season of the year an array of Orchids in flower, such as I have recently seen at Mr. Cypher's nurseries in the Queen's Road, is a cheering sight. I spent an agreeable hour among these Orchids, which was rendered all the more pleasant owing to the intelligence and patience of Mr. John Cypher in carefully informing one of all the interesting particulars concerning many of them. In the new Cattleya house were numbers of *Barkerias*, which included the lovely *C. Skinneri*, with rosy purplish mauve flowers, with its broad and distinct labellum; and also *B. Lindleyana*. Amongst the *Cattleyas* are to be seen *C. Loddigesiana*; *C. Triana*, a pale variety; and the yellow-flowered *C. Holfordi*, a very distinct *Cattleya*, carrying twenty-two flowers. Near by were *Lælia anceps Barkeri*, a very fine form; also *Lælia autumnale*, the plants of the latter are very late, which gives them additional value just now. Here they are flowering with their wonted freedom, and have fine spikes of flowers as much varied as the plants themselves. Of *Oncidium Jonesianum* three distinct forms are grown; particularly noticeable was a variety with very dark purple-chestnut spots, the upper portion of the lip spotted with crimson. There are some fine forms of the well known *Cypripedium insigne*, among which are several carrying two flowers in a scape, evidence at least of good culture. Nor must the *Cælogynes* be omitted; these are just bursting, in fact some already open, and extremely useful they are. Conspicuous among them all is the Chatsworth variety, in which the pseudo-bulbs would appear less numerous and more widely scattered than in the type, and apart from these distinctions it invariably carries in these nurseries two spikes of flowers to each flowering pseudo bulb; if this is general with this variety it is certainly doubly valuable.

In the *Odontoglossum* house are many beautiful forms of *O. Rossi majus*, all suspended near the glass. Among the *Cypripedes* in this house were *C. insigne Maulei* and *Chantini*, the latter spotted with light violet. In this house *Lycastes* abound, some in flower, others on the wane, and numbers beside throwing up strong spikes. There also I noted the satiny flowers of *Masdevallia tovarensis*, of which a profusion has been maintained since October last, but it is now nearly over. The East Indian house is bright with many flowers, the chief attraction being the many deep-coloured arching spikes of *Calanthe Veitchii*, but *Saccolabium giganteum* is handsome. Then we notice the so-called white *Dendrobium bigibbum*, *D. leucophotum*, but which somewhat resembles in the form of the inflorescence *Freesia refracta alba*, in which the flower spike having attained the maximum, a horizontal direction, on which the flowers of this *Dendrobe* are closely arranged. Other *Dendrobes* in flower are *D. bigibbum*, *D. Ainsworthi*, *D. nobile*, with *D. heterocarpum*, which are its parents, the latter very sweet, and the welcome *D. Dearii*, the most durable of all the white *Dendrobes*. The plants of *Ainsworthi*, which are many, are specially noteworthy for vigour, due in a great measure to plenty of heat, abundance of moisture, and a position close to the glass. As an instance of their progress in twelve months, I may state that a year ago each of the plants consisted in most cases of a single bulb from 2 to 3 inches long, from these have sprung some fine pseudo-bulbs, stout and massive, the longest about 1 foot, and others 6 or 7 inches. The whole of the



plants have similar growths, and two and three on each plant at the present time—a remarkable instance of cultural skill. Among other flowers are *Cypripedium biflorum* and *Spicerianum*, *Peristeria elata*, *Angraecum sesquipedale*, and *Vanda Sanderiana*, a very deep-coloured variety, just passing. There are many others in flower which space forbids to name now, and then soon will follow the *Cattleyas* and many *Dendrobies*; those I have named, however, constitute a fine display.—J. H. E.

### FARMERS AND GARDENERS.

THIS subject has been very ably discussed, but a few words for the farmers will not be out of place. If my memory does not fail me, about fifteen years ago "farming" was at its best, not by steady and sure progress, but by a great leap of prosperity which unduly stimulated not only it but every other trade, and which, as subsequent events prove, has done more harm to the country than good. Prices of agricultural produce were then very high, almost double the prices as stated by "Thinker" on page 2. Machinery was becoming largely used, thus superseding much hand labour, and men consequently rushed to the towns for higher wages. Farmers undoubtedly then made great profits, and through that cause were able to pay greater increased rents to the landlord. But tradesmen who had themselves made small fortunes saw with envy the position the farmers then held in reference to profits, and the supposed ease and pleasure of a country life. They then entered into competition with the farmers for the possession of the coveted farms. The result was that either farmers had to take increased rents or leave their farms, which of course they naturally did not like, as perhaps the farm might have been in the possession of their family for a century or two. By such means perhaps more money was paid for the land rental than it was practically worth, as subsequent events proved. Bad seasons began to follow the prosperous ones. Agricultural produce prices began to fall through the keenness of foreign competition. But to make matters worse wet seasons came in succession, thus preventing the farmer getting his crops properly harvested, and also entailed a large amount of extra labour as well as giving produce of inferior quality. Wet seasons not only affected the crops, they had undoubtedly a great deal to do with the increase of cattle disease. As it is well known, couch grass and weeds spread more in wet weather, and this accounts for the deplorable state of the land, the wet seasons preventing the farmer getting his land clean. But who did bad seasons affect first? The tradesman who had made his fortune in the town and who had taken to farming in the hope of increasing his gains; but he found that farming was not to be learnt behind the counter and succumbed, his capital soon becoming exhausted through his ignorance of farming and the high rental he paid. The experienced farmer naturally survived longer than his town competitor; but taking into account the great reduction in value of all kinds of agricultural produce, he is now in my opinion entitled to a reduction of rent which shall place him on the same footing as before rents were increased in the so-called "good old times" all over the country.

Perhaps after describing the farmer's past history we may look at the proposals which are put forward for his benefit. They have been advised to take to "market gardening;" but although it might benefit those who live near towns, I think that the present state of prices and the railway charge for carriage to market make it impossible for them to follow it with any success; and I did not see a very encouraging report of farmers who had in Essex taken to growing Onions and other vegetables, as it was stated that they had been left on the ground to rot on account of the unremunerative prices. I agree with "J. T. S." that farmers could do better if they would turn their hand to some of the smaller industries, such as the rearing of fowls in greater numbers and the larger production of eggs and butter, for I think the prices of grain will never greatly improve in the face of foreign competition. "Thinker" considers that bigger cultivation in farming ought to be aimed at, and with that I thoroughly agree; but may I remind him that many farmers have had their capital washed away by the wet seasons? He also speaks of the supposed advantage they possess in being nearer home markets, but the cheapness of freightage from America and the few taxes they have to pay places both parties nearly equal. It is a known fact that grain can be brought as cheap, if not cheaper, from New York to London than it can from Cheshire to London. I think improvement would follow if British farmers were placed on an equal footing with their American cousins in reference to railway rates, and also confidence should be brought into farming, so as to encourage capital to be invested in the land; and I think local rates which press so heavily on land ought to be equitably readjusted. With fair rents and seasons like the last two we have experienced farming will come back to sure and steady prosperity we all hope for, as it is certain the position of gardeners would be improved thereby.—A. E. H.

FROM their omission in "Thinker's" opening paragraph I conclude we agree in agricultural depression being mainly due to badly cultivated land and in the "manufacture" of gardeners by premiums, bonuses, and favouritism. As he also does not say one word against gentlemen selling garden produce the difference between us is much simplified. Still it is painful to see land growing as much couch as Wheat, pastures not depastured, homesteads without tenants. Think of these things, Mr. "Thinker," and tell us if it is not in a great measure due to driving the labourer from the village to the town, and adding nothing to the soil. I do not think I need trouble your readers with any comments on paragraphs 4 and 5, as they contain nothing but an idea existing in the minds of those

fearing open competition. "Thinker" clearly believes in "fair," I in "free" trade. It is not my business to look after the assessor—to tell him I have given up growing solely for my employer's use, but as we sell some of it I wish him to make an early call. If I improve the soil and make it grow double, ought I to be assessed at a higher rate? The question is the same whether I sell or not. I do not believe in an inequality of taxation, and I do not comprehend why a house costing £1000, and let at £50 or £100 a year, should be more highly taxed as a lodging house than as a private residence; but if the house as a private residence only lets for £50 and as a lodging house at £100, it is clear which valuation it would be rated upon.

Now for your question, Mr. "Thinker." Suppose I have saved a little money and may get some land, work hard, my market-gardening experience coming in useful, and build a house, grow and sell something. I suppose I shall not be obliged to tell what is made out of it annually. If asked, I could say it is there: It cost me so much, say £50; well, it is worth £5 a year to you at 10 per cent., and he assesses me accordingly. A retired tradesman opposite has put up a conservatory costing £100, and is only rated at 5 per cent., or £5. I should grumble even at that, and what I should do if the tradesman began to sell I do not know; certainly grumble harder, and at the next assessment appeal. If a person selling the produce of the land he cultivates himself is not taxed upon the same scale as others similarly occupied there is an inequality, and if a garden which has previously been devoted to growing for home use is taxed at a less rate than that of growers for sale, then the inequality comes in again, for if the grower did not produce his own flowers, fruit, and vegetables, he must of necessity buy—that is, if he will have these he ought to pay for them, whether he produces them himself or they are grown by others and purchased by him. My contention is, that whether a man cultivates his own garden or whether it be let it should be rated at its full annual value or rental. I am not aware that there is any difference between the rating of the garden and structures in it of which I have charge than of the ground and structures in a neighbouring nursery. If a garden that hitherto has only grown sufficient for the establishment grows more and sells, I cannot see any injustice in not seeking an "early rectification" simply because the rate is as high (with a tax on the labour in addition) as land used for a like purpose in the locality.

Allotments are coming to the front. I think there is plenty of them in most parishes; at least, there was in the village where I was born. My father and grandfather had one each, and the rent was 10s. per rood, 40s. per acre. This was over forty years ago. Both had the three acres of land and the cow, and I wish every labouring man had the same. It would fix him to the soil, and it would be better for the landlord, the tenant, and others. But to stick to one thing. Allotments have been provided on every estate I have been on, east, west, north, south; and where they have been insufficient for the increased population a representation at the proper quarter has insured a sufficiency. I want to know why an allotment should be rated at a higher value than land adjoining under plough. If there is any logic in "Thinker's" reasoning it ought to be. Under deep spade cultivation and more cleanly culture it will grow double, it is worth more; Why not tax it bigger? Take two allotments; of one the occupier consumes the produce, the other is cultivated to grow for sale. Why should not both be taxed alike? The first derives no profit; he gets as much as the other, but in a different way, because he grows for himself, but the other does because he sells; and ought he to suffer? The grower for himself exhibits for the most part little skill in culture, but the grower for sale must cultivate well if he seeks a balance on the right side of the ledger. Private gardens, as a rule, are very indifferently cultivated, some of them woefully neglected, and the sooner they are turned into market gardens the better for the owners, the better for the gardeners, and the better for the public. Gardeners by so doing will be "looking well and honestly after their masters' interest and their own." It is the gardener's first duty to earn his own living, and above all things give his employer confidence in him as a cultivator not afraid to compete with the market gardener, and if need be with nurserymen in the open market.

I believe that gardening for utility will assuredly supplant gardening for fancy. I do not advocate gardeners turning greengrocers and costermongers; one trade is enough for me, and that is to grow all and the best I can, selling it in the open market. The remedy for the "middleman" is simply to do your own marketing. If people will have things brought to the door they must pay for it, and if they will have credit they must be charged interest, but it does not suit—UTILITARIAN.

In this Journal for January 7th, page 2, I was a little surprised to read in "Thinker's" thoughts on the past year his reference to farmers and gardeners. If "Thinker" had ever been one year in a farm house I fancy he would have found the farmer not quite such a sluggard as he represents him to be. The farmers have pushed forward through this great depression with equally as much energy as the private or market gardeners, also there are very many farms well managed, and the land well cultivated. "Thinker" says five or six quarters of Wheat per acre should leave a living profit. I have seen six and a half quarters of Wheat per acre, and seven quarters of Barley per acre this last season, and still there is great depression. Mr. "Thinker" quotes five farmers to 1000 acre farm, where one who have farmed it and could not get a living profit. If Mr. "Thinker" could insure five or six quarters to the acre every year, and good luck with the stock, perhaps the farmer can live, but not to get a return for his capital, which ought to be recovered as well as in every other branch of industry. Now, I say he cannot insure five or six quarters per acre even on the best land in adverse



seasons. Farming, as well as gardening, is under the influence of the weather. I believe, with many others, that the times were never much worse. Has "Thinker" known Wheat to be below 28s. per quarter? I have not. If he had attended Boston Market the other week he could have seen plenty on offer, at least that was the average of the market.

The rent question "Thinker" has brought down to the lowest ebb; but what about the rates? The School Board rate is now more in many parishes than the Poor's rate was forty years back. I think he will find the rates from 60 to 80 per cent. higher than they were forty years ago. Do not these rates and the tithe tell heavily against the farmer? and can he expect the wages to be maintained as high as they were two years ago under the present depression in the agricultural districts, or the present low prices of corn and stock? I say without hesitation that every person, whether gardener, agriculturist, mechanic, or labourer of any sort, can live from 7½ to 10 per cent. cheaper now than they could two years back, therefore the wages must come down.

"Thinker" has mentioned that our Apples go a-begging, whilst the American Apples are selling freely in our markets. It is well known that our climate will not—at least in many parts of the country—give us such hot sunny weather as our American neighbours have to produce their highly coloured Apples. If we planted all the choice American varieties very few could have them as they can be had in America. I ask, Why should we not grow Pears here to equal those from Jersey? also why not grow Grapes as cheap as those from the Channel Islands? The answer in both cases is, We have not the climate in England. We have plenty of good Apples here in a favourable season if a ready market could be obtained. In October last I was in a village in the north about 100 miles from King's Cross, where there was an exceedingly heavy crop of Apples, and there sacks, not bushels, of fruit were on the ground under the trees. I asked my friend why he did not sell these, and the answer was, It will not pay to have them gathered and packed. I thought they ought to pay a little if sent to Covent Garden Market. I asked a salesman the value and railway expenses per bushel, and found to my surprise that they would scarcely pay the cost of railway carriage and commission, the owner giving his trouble and leaving no profit. The varieties were Scarlet Nonpareil, Ribston Pippin, and Blenheim Pippin.

In the Journal, January 21st, page 42, "Utilitarian" is very hard on the farmer. He speaks as if none of the farmers have any capital, and that the market gardener can outbuy him and outwit him by bringing up his sons to work and keeping his daughters from the piano. Now I beg to differ, as I can say the market gardeners have pianos and their daughters play them equally as much as the farmers' daughters. And why should they not? May I ask "Utilitarian" what capital should a farmer have to take a farm of 200 acres, to take stock and crop his farm, and provide all implements? I say £10 per acre is the average. Now should not a man with £2000 capital have a few luxuries as well as any head gardener or market gardener?

"Utilitarian" and "Thinker" both agree that by the land-hunger of the farmer in prosperous times the small farms were thrown into large ones. Now I beg to differ even on this point, for the landlords had the small farms thrown into large ones; and where are the small farmers? They are now causing the depression in the agricultural districts, or among the farmers here by their produce from Australia, New Zealand, and America.—ONE WHO WISHES FOR FAIR PLAY.



In consequence of the unusual pressure on our columns this week we are obliged to defer the publication of several interesting articles and a series of "thoughts" on some not unimportant subjects.

— **HORTICULTURAL CLUB.**—The annual dinner of the Club was held on Thursday last, the day having been altered in consequence of the Royal Horticultural Society having arranged their annual dinner for the day on which the Club's dinner had been fixed. There was a large attendance of members, including Mr. John Lee, Chairman, the Hon. and Rev. J. T. Boscawen, Dr. Hogg, Dr. Masters, Professor Foster, Messrs. J. S. Cousens, T. P. Collings, William Bull, George Deal, Herbert Cutbush, J. F. Strange, C. P. Wheatstone, &c. Much interesting conversation took place on the condition and prospects of the Club, and the good work that it was doing, while opinions were strongly expressed that in the future it would hold a still more useful position. The next meeting was announced for Tuesday, March 9th, when it is probable that the discussion at the conversazione will be opened by Mr. Shirley Hibberd.

— "A SUBSCRIBER" writes:—"I shall be much obliged if any of your readers will inform me what is the best thing to catch MOTHS with. I have tried sugar and rum, as recommended by some entomologists, but have not found it answer."

— WE regret to have to announce the death of Mr. C. FRISBY, which took place on the 2nd inst. at Branston, in the seventy-first year of his age. Mr. Frisby was over forty years gardener at Blankney, and gained considerable reputation as a practical gardener and exhibitor. He raised several florists' flowers of merit, also the Excelsior Beet, which has been found a good variety, and the Blankney Hero Melon originated in the same gardens. Several years since Mr. Frisby retired from his charge, and had since enjoyed a substantial pension from the Rt. Hon. H. Chaplin, M.P. Mr. Frisby died suddenly from inflammation.

— WE also hear that Mr. HENRY BOLLER of the Woodfield Nursery, Harrow Road, died on the 3rd inst. He was well known as a cultivator of Cactaceous plants, and at one time had an extensive collection.

— A MEETING of the TURNER MEMORIAL FUND COMMITTEE was held at South Kensington yesterday, Mr. Harry J. Veitch in the chair. It was announced that a sum of £175 had been received, but it was still hoped to raise it to £200. On the proposition of Mr. G. Paul, seconded by Mr. Cannell, three trustees were appointed—namely, Messrs H. M. Pollett, H. J. Veitch, and H. Turner. It was also resolved that the funds be invested in stock guaranteed by the Home or Indian Government, and that the prizes offered will be limited to amateurs.

— ONE of the most useful of winter-flowering plants, ACACIA PLATYPTERA, is also in capital condition now, a dozen or more plants being very valuable in a conservatory. It is one of the quickest growing Acacias, and surpasses many others in flowering when quite small, while larger specimens yield a valuable supply of flowers. For decorative purposes plants in 60 and 48-size pots are most useful, and a good stock of these can be readily obtained from cuttings of the stems taken a week or two later.

— A MEETING of the GENERAL COMMITTEE of the NATIONAL CHRYSANTHEMUM SOCIETY was held on Monday last at the Old Four Swans, Bishopsgate Street, when the Floral Committee for the year was elected, together with sub-committees for various purposes, including one for the preparation of a new edition of the catalogue. The Royal Aquarium Company, Westminster, having made liberal offers of prizes, it was decided to hold three shows, one for early Chrysanthemums and Dahlias, the ordinary one in November, and a late Show in January.

— "A L. G." writes:—"I feel flattered by the kindness shown me by a "Gardener of Great Experience." My remarks on the ANALYSIS OF SOIL were written more with the view of obtaining than giving advice. I am only a working gardener, and I think if your correspondent has any questions to ask me it would be better if it were done as suggested through the Journal." [We neither give the names of correspondents who write under initials or a *nom de plume*, nor permit them to be extracted by others. If the writers in question send us their names and addresses, and specially request us to forward them to any person, we comply with their request. If it is simply intimated to us that we are "at liberty" to disclose names, we invariably decline to furnish them to inquirers.]

— THE Council of the Royal Meteorological Society have arranged to hold at 25, Great George Street, S.W., on the evenings of March 16th and 17th next, AN EXHIBITION OF BAROMETERS, and the Secretary invites the co-operation of all interested, as it is desired to obtain as large a collection as possible of such instruments. The Committee will also be glad to show any new meteorological apparatus invented or first constructed since last March; as well as photographs and drawings possessing meteorological interest not previously exhibited.

— A FEW EARLY FLOWERS are now peeping through the ground, one of the prettiest being the Winter Aconite, *Eranthis hyemalis*, which is showing its bright yellow blossoms in abundance. Upon mounds or under the shade of trees it succeeds well, and if associated with Snowdrops it is still more beautiful. We recently saw a cheerful little spot under a Weeping Ash, where there was a liberal scattering of these winter-flowering plants, and a charming appearance they presented. Many an otherwise dull place in a garden might be enlivened by a well-considered system of arranging such early-flowering plants as those named with Daffodils, Primroses, and Scillas of the siberica and bifolia types. Planting Crocuses and other bulbs in grass is now becoming a more general practice, and it is surprising how the beauty of a garden may be diversified and prolonged by adopting such plans as these.

— A COMPARATIVELY old plant is RHODOCHITON VOLUBILE, yet



we do not see it so frequently as might be expected, though its merits entitle it to a place in every greenhouse where it is desired to have some covering for the roof rafters. It grows quickly, its slender stems extending to a great length, and bears its flowers from nearly every axil, and they remain attached to the plant for a very long time. The most conspicuous part of the flower is the calyx, which is saucer-like, over 1 inch in diameter, and of a bright rosy colour, which continues fresh while the globular fruits that assume the same tint are ripening. The corolla is of a dark purplish hue and tubular, falling off after the fruits are set. At the present time this *Rhodochiton* is very attractive trained along the roof of a cool house, and has both flowers and fruits in various stages at the same time. A main stem is taken lengthways, and then from this hang a number of secondary growths which are like wreaths of rosy flowers.

— MR. JOSEPH MALLENDER sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, Worksop, Notts, for January, 1886:—Mean temperature of month 34.4°. Maximum on the 1st, 51.3°; minimum on the 19th, 16.5°. Maximum in sun on the 31st, 90.9°; minimum on the grass on the 25th, 10.9°. Warmest day the 1st, mean temperature 48.7°. Coldest day the 19th, mean temperature 21.3°. Mean temperature of the air at 9 A.M., 33.7°. Mean temperature of the soil 1 foot deep 36.2°. Nights below 32° in shade twenty-one, on the grass twenty-seven. Sunshine, total duration in month forty-four hours, or eighteen per cent. of possible; the brightest day the 8th. We had ten sunless days. Rainfall, total amount in the month 3.24 inches. Maximum fall in twenty-four hours on the 10th 0.41 inch. Rain fell on twenty-three days. Wind, average velocity 11.7 miles per hour; exceeded 400 miles on eight days, and fell short of 100 miles on three days. Temperature below the average throughout, but the frost more remarkable for its lasting than for its severity and for the number of alternations of frost and thaw. The total rainfall (of which a large part was snow) and the number of rainy days more than in any of the previous ten years. Sunshine more than in four out of the five last years.

— AT a recent meeting of the Linnean Society, an extensive series of FOSSIL PLANTS FROM THE ISLAND OF MULL was exhibited by Mr. J. Starkie Gardner, who gave remarks concerning inferences to be drawn from the well-preserved leaves. He mentioned that this fossil Mull flora comprises but one Fern undistinguishable from living *Onoclea sensibilis* of Western America and Eastern Asia. There is an *Equisetum*. The Coniferae are abundant; a *Ginkgo* resembles existing species, along with numerous Firs and Larches, a few of these latter being similar to those of Japan. Monocotyledons are represented by one having a sword-shaped leaf. There are at least twenty species of dicotyledons. A *Platanus* obtains, differing somewhat from the recent form, and with resemblances to what is known as *Credneria* and *Protophyllum* of Cretaceous age. This Mull flora, though possessing few novelties, is interesting as supplying fresh confirmation of the view first propounded by Asa Gray—that formerly the entire northern temperate regions possessed a very uniform flora.

— ON the same occasion Dr. M. T. Masters read a paper on the HISTORY OF SOME CONIFERS, which was illustrated by living plants from Mr. Harry J. Veitch, of *Abies Fortunei*, *A. nobilis*, *A. grandis*, and *A. amabilis*; also of *Pseudolarix Kämpferi*, *Picea Omorika*, *Arthrotaxis selaginoides* with others. Dr. Masters' remarks comprised the result of observations on the mode of growth and structure of various species of Coniferae, concerning which much difference of opinion had previously existed owing to the imperfection of our knowledge. Of late years many of these species had been introduced into cultivation, and some of them had produced male flowers and cones, thus affording an opportunity for diagnosing the species and ascertaining their limitations. The study of the cultivated plants had likewise shown the natural range of variation in a species or individual plant under comparatively uniform conditions. Our knowledge of their geographical distribution has also been extended, altogether thus enabling a fresh revision to be attempted.

#### SOWING WRINKLED PEAS EARLY.

"KITCHENER," in referring to the advice of Mr. Marriott to sow some each of the best Peas at the present time, repeats, in my opinion, an error in Pea culture. High-priced varieties are, I know, disliked by some employers, but with those, however, who buy and grow for their own consumption this erroneous idea is fast dying out. It should be considered that a more robust constitution has been introduced along with improved flavour. Much doubt as to the safety of early sowing is removed,

seeing that one half-pint of several new or recent introductions produces an equal crop to a quart or more of some fairly good varieties, while in point of size and quality for exhibition or profit, and I may add for a gentleman's table, comparison would go against the cheaper sorts. I have found even in the north of England in dry ground, the following may with advantage be sown in favourable weather during January and February:—Criterion, Telephone, Sutton's Giant Emerald Marrow, Duke of Albany, and Lord Bacon. Emerald Marrow I consider to be one of the best-flavoured Peas in cultivation, but not suitable for exhibition. It is a white Pea, very distinct and heavy cropper.—LATHYRUS.

#### ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 9TH.

THE members of the committees and the visitors were agreeably surprised to see such a bright and extensive gathering of plants, flowers, and Apples as that presented on Tuesday last. Very seldom do the February meetings bring such effective displays, and still less could it have been expected in such severe weather; yet delicate Orchids were brought in sufficient numbers to form several beautiful groups, hardy plants were represented by several choice selections, and the display of Apples was a remarkable one for the time of year.

FRUIT COMMITTEE.—Present: Harry J. Veitch and Messrs. T. B. Haywood, R. D. Blackmore, James Smith, John Woodbridge, W. Denning, J. Willard, G. T. W. Miles, Harrison Weir, Philip Crowley, John Burnett, Wm. Paul, George Bunyard, and Dr. Robert Hogg. Mr. J. Wells, Fern Hill, Windsor Forest, sent two small bunches of Cooper's Black Grape to show its keeping qualities; they were cut on the previous night from a Vine grafted on Trentham Black. The berries were fairly plump, bearing a thick bloom and were of good flavour. The same exhibitor had two dishes of Catillac, the fruits in one having been grown on light soil and the others on clay. The former were found to be much the better, but the Committee desired to have further information respecting the stocks upon which they are worked. Good samples of Pear Bergamotte d'Esperen also came from Mr. Wells. Messrs. C. & J. W. Townsend, Fordham, Cambs., sent four samples of a seedling Apple, which was passed; as also were other seedling Apples from Messrs. Elsdon & Co., Melton; Mr. G. Collins, Stourport; and Mr. J. Corderoy, Didcot. Messrs. G. Bunyard & Co., Maidstone, showed fruits of Apples Smart's Prince Arthur, Jacob's Apple; Mr. Corderoy sent a dish of Golden Drop Apples, and Mr. R. Dean had some samples of Hambledon Deux Ans, very sound and good. Mr. Draper, Seaham Hall, Sutherland, showed a Green Kale called Draper's Seedling, which is to be tried at Chiswick.

Messrs. J. Cheal & Sons, Crawley, were awarded a silver Banksian medal for a collection of seventy-five dishes of Apples, remarkably well kept, the fruits of good size and well coloured. The principal varieties were Blenheim Pippin, Gloria Mundi, Golden Noble, Hoary Morning, Winter Queen, Worcester Pearmain, Frogmore Prolific, Loddington, Annie Elizabeth, Reinette du Canada, Hollandbury, Alfriston, New Hawthornden, Cox's Pomona, Kerry Pippin, English Codlin, Mère de Ménage, Egremont Russet, a Sussex Apple of good quality, and Warner's King. All were handsome samples of their respective varieties. Messrs. T. Rivers and Son, Sawbridgeworth, were awarded a medal of equal value for 200 dishes of Apples, comprising most of the varieties already mentioned, and specimens of the following were also notable:—Cox's Pomona, Buckingham, Barclay's Sweet, Dumelow's Seedling, Melon, Reinette du Canada, British Fillbasket, Mère de Ménage, King of Tomkin's County, Reinette Noire. Messrs. G. Bunyard & Co., Maidstone, were also awarded a silver Banksian medal for a collection of 100 dishes of Apples in admirable condition, the fruits of considerable size and well kept. Especially good were Cox's Pomona, Lord Derby, Stone's Apple, Hoary Morning, Warner's King, Peasegood's Nonesuch, Duchess's Favourite, Golden Noble, Emperor Alexander, Cox's Pomona, Lord Derby, Alfriston, King of the Pippins, Melon, Alfriston, Hoary Morning, New Hawthornden.

FLORAL COMMITTEE.—Present—G. F. Wilson, Esq., in the chair. Dr. W. H. Lowe, and Messrs. J. Douglas, W. B. Kellock, E. Hill, J. O'Brien, H. M. Pollett, John Dominy, H. Ballantine, A. Lendy, Richard Dean, W. Holmes, H. Herbst, W. Wilks, G. Duffield, H. Bennett, John Laing, James Walker, G. Paul, Thomas Baines, Harry Turner, and H. Cannell.

A cultural commendation was awarded to G. F. Wilson, Esq., Weybridge (gardener, Mr. Chamberlain) for a raceme of *Phaius tuberculatus* with a dozen of its beautiful flowers, the white sepals and petals contrasting admirably with the bronzy red mottled lip, white in the centre with a yellow ridge and pink margin. H. M. Pollett, Esq., Bickley, sent spikes of *Odontoglossum Schillerianum*, somewhat like *O. odoratum*, yellow barred with red, and a beautiful variety of *C. Trianae*. A good plant of *Cattleya Measuresiana* was also shown with four flowers, the sepals and petals greenish brown, and the lip crimson. Mr. Haywood, Woodhatch Lodge, had several pretty varieties of *Cattleya Trianae*, and a good variety of *Odontoglossum Rossi* called *ornatum*, spotted with deep crimson brown. R. J. Measures, Esq., Camberwell, showed a plant of *Cypripedium Measuresianum*, a new species from Borneo, with a green dorsal sepal and purplish petals. A cultural commendation was awarded to Mr. J. Douglas, The Gardens, Great Gearing, Ilford, for a large panicle of *Odontoglossum cirrhosum*, a distinct crimson spotted variety. A cultural commendation was awarded to Mr. Ballantine, The Dell Gardens, Egham, for a grand plant of *Cattleya Trianae Russelliana*, bearing thirteen large flowers, the sepals and petals bluish, the latter very broad, and the lip exceedingly rich crimson. Dr. Duke, Lewisham, sent a plant of *Cattleya Trianae Dukeana* and *C. Laurenciana*.

C. Scrase Dickens, Esq., Coolhurst, Horsham, was adjudged a bronze Banksian medal for a most beautiful and tastefully arranged collection of Camellia flowers, chiefly single and semi-double, crimson, pink, white, and white-striped with crimson. They were arranged upon moss with their own foliage. Mr. F. Ross, gardener to Sir G. Macleay, K.C.M.G., Pendell Court, Bletchingley, was also awarded a vote of thanks for a large plant of *Bromelia macrodora*, with large drooping spikes, the flowers greenish, and long elliptical bright red bracts. Votes of thanks were accorded to G. Nevill Wyatt, Esq., Lake House, Cheltenham, for a plant of *Cattleya Percivaliana*, with a broad expanded bright crimson lip; to Messrs. H. Cannell & Sons, Swanley,



for a beautiful collection of *Primula* flowers and plants representing the choicest Swanley varieties, both single and double. From the Society's garden came a group of *Primula malva-cripsa*, a variety with single white flowers and curled foliage. Mr. J. James, Woodside, Farnham, sent two *Cineraria*, very fine varieties, richly coloured; and Mr. Woolford, gardener to H. Palmer, Esq., East Thorpe, Reading, had some fine crimson *Primula* as named Mrs. Palmer.

Mr. T. S. Ware, Hale Farm, Tottenham, was adjudged a silver Banksian medal for an interesting group of hardy plants, comprising *Cyclamens*, *Irises*, *Galanthus*, and *Crocuses*. *Crocuses* *Coccyzus* *album*, *roseum* *Atkinsi*, *purpureum* and *album* were well represented by specimens in pans about 9 inches in diameter. *Irises* *reticulata* and its variety *Kelagel* were very attractive. *Crocus imperati* and the variety *longiflorus* were good, the latter deeper rosy crimson in colour. The charming white *Narcissus monophyllus* was excellent. Messrs. Burr & Son, Covent Garden, showed a small collection of *Hellebors*, varieties of *orientalis*, *abchasicus* and *guttatus*; and *colchicus*, dark and light, the latter with dark spots. A few *Cyclamens* of the *C. ibericum*, *C. C. u.*, and *C. Atkinsi* were also staged with two grand pans of *Galanthus Elwesii*, the flowers very large and beautiful. Messrs. Collins Brothers & Gabriel, 39, Waterloo Road, London, S.E., had a beautiful collection of *Narcissi*, comprising twenty-four varieties of the most diverse form and size. They had been grown in pots in a frame, and were as fresh as could be wished. Owing to their earliness they attracted much attention. Some of the best varieties were *Princeps*, creamy sepals, yellow tube; *moschatus*, white; *bicolor* *Horsfieldi*, white sepals, yellow tube; *obvallaris*, golden yellow, beautiful form; *incomparabilis plenius*, double orange and white; *triandrus*, a charming diminutive creamy yellow flower; *Corbularia citrina*, *Græsi*, and *alba*, three pretty varieties of Hoop Petticoat *Narcissi*; *pallida pæcox*, one of the earliest of all the Daffodils; *maximus*, very large and bright golden yellow. A few *Lachenalias* and *Galanthus Elwesii* served to brighten the collection, for which a silver Banksian medal was awarded.

Mr. C. Turner, Slough, was awarded a bronze Banksian medal for a group of strongly grown white *Cyclamens*, the flowers of which were very large and of great substance. A similar award was adjudged to Messrs. Heath & Son, Cheltenham, for a group of *Oxontoglossum Rozei* and the variety *alba*, exceedingly well-grown plants, bearing several spikes each. Some plants of a species of *Ficus* were also sent by Messrs. Heath, the leaves elliptical and dark green. A silver Banksian medal was awarded to the St. George's Nursery Company for a large and handsome group of *Cyclamens*, exceedingly well-grown plants, most varied in colour, rich, delicate, and pure white.

#### PLANTS CERTIFICATED.

*Cattleya Trianae Schroderiana* (Ballantine).—A magnificent Orchid, one of the grandest *Cattleyas* yet obtained. Sepals and petals faintly tinged with pink, the petals  $3\frac{1}{2}$  inches in diameter, the lip  $2\frac{1}{2}$  across, brilliant crimson with a yellow throat. The plant shown had twenty-one flowers.

*Cattleya Trianae Ernesti* (R. J. Measures, Esq.).—A lovely variety, the sepals narrow, bluish-tinted; the petals broader, similar in colour, but tipped with crimson; the lip of a most intensely rich crimson at the upper half, white or blush towards the base.

*Iris reticulata cyanea* (Ware).—This chiefly differs in the flowers being smaller than *Iris reticulata*, with more blue colouring.

*Primula floribunda* (Ware).—A charming little *Primula*. The flowers bright yellow, small, in umbels about 6 inches high. Very pretty and free-flowering.

*Galanthus Elwesii* (Barr & Son, and T. S. Ware).—A beautiful Snowdrop, one of the best in cultivation. The inner divisions of the perianth are white, green at the base, and green streaks on the inner surface; the outer divisions are white, large, oval, and spreading sometimes as much as 1 inch in diameter.

*Arum pulestinum* (Heath & Son).—A curious species, with leaves somewhat like the common *Arum*; the spathe about 7 inches long, dark maroon, and the spadix about the same length, quite black. This is the plant which has gained the title of the "Crimson Calla" in the United States.

#### THE LATE MR. JOHN ROBSON.

I REGRET to see in the Journal an account of the death of my friend Mr. John Robson, and can testify to the accuracy of the well-merited eulogium therein passed upon him. I have had the pleasure of his friendship for the past twenty years, and in my opinion it would be difficult to find a more genial or kindhearted man, and one who was more beloved and respected by all acquainted with him. It was in connection with the Maidstone Gardeners' Society where I and many others best knew his worth. It was mainly through his administrative ability and wise counsel, as well as co-operating with such well-known men as Mr. Davis at the cemetery, who is not inaptly termed the father of the Society; Mr. Bradley, late of Preston Hall; the late Mr. Thomas Frost, nurseryman; Mr. Harrison, seedsman, and others that the Society has been raised to one of the best and one of the most useful in the country. It was a pleasure to be present at a meeting when he was chairman and hear him unfold his practice and ideas in such a lucid manner of whatever subject was brought before him for discussion. He was particularly happy when it was a young gardener who sought his advice, and if he could not then devote the time to fully go into the matter and send him home happy, that man might be confident of a communication by letter giving him the best advice in his power. He was a well learned man in all matters connected with gardening, especially in the designing for ground work, also his sound and true judgment of the effect of different landscapes, the effect and influence of different soils on the growth of timber trees, the geological formation of the earth in different parts of the country and its influence on vegetation, were his favourite topics of conversation; and he has more than once remarked to me that he hoped to live long enough to see young gardeners take more interest in ground work, a knowledge of which he found young men as a rule lamentably deficient. His pre-

diction was that such knowledge would bring about more stability and a better understanding between employer and employee. He was a man of noble mind and thought, and always upheld his profession in a true and manly way, and one whose example many would do well to imitate.—T. RECORD.

THE announcement of the death of this gentleman in last week's Journal would be read with great regret by many friends besides myself. It has been my privilege to know him as a most kind friend, and part of the time—1872 to 1875—as a master. In the ten years following that time in pursuit of knowledge and experience I moved to various parts of the country, and had several masters, but never afterwards did I meet with his equal. He was kind and encouraging to young men under him, and watchful of their interests afterwards. His store of knowledge was very great, and was always at the service of his humbler brethren, and especially his young men; indeed nothing seemed to give him so much pleasure as helping others by advice and information.

Most of the readers of our Journal will remember his contributions to its pages up to the time he was laid aside by illness, and was obliged to resign his situation in consequence. His articles were always so full of sound instruction and common sense, because written from practice and personal experience. At that time the gardens at Linton were especially noted for their fine collection of hardy plants, flowering trees, and shrubs, &c., in which he took great interest, and also in the splendid collection of *Coniferae*, which are still to be seen. He also took especial interest in the formation and management of the Maidstone Gardeners' Mutual Improvement Association, and acted as Chairman of its meetings for a long period. Many are the useful and practical lessons he taught the members, and in this sense his place at the meetings has never since been filled. The members showed their appreciation of his services by presenting him with the handsome gold watch and chain alluded to in your last issue. Later on he also very largely assisted in the management of the Broughton and Linton Society, which was formed on much the same plan as the parent and larger one at Maidstone.

A man of such experience and ability was certain to make many friends, and what is more, he never lost them afterwards, but was very much esteemed by all classes in the neighbourhood, which was conclusively shown by the splendid testimonial presented to him on resigning his arduous charge at Linton, also referred to in your last number. His was a useful and well-spent life, in which every opportunity was seized of doing good to others—a kind husband, a good father, and a firm and faithful friend, he set an example for us all to follow.—W. H. DIVERS, *Ketton Hall*.

#### UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

THE annual meeting of this excellent and flourishing Institution, which has been established twenty years, was held on Monday evening last in the Society's room at the Caledonian Hotel, Strand, London. Mr. Richard Dean, one of the honorary members, presiding. The Chairman, in opening the proceedings, adverted in appropriate terms to the great usefulness of the Society, testified to the admirable manner in which it is conducted, and expressed his strong conviction that if the advantages offered were fully appreciated by gardeners that the accession of members, great as it has been during the past few years, would be still greater. In that expression of opinion we join. It should be stated that no pecuniary interest whatsoever is derived by the directorate, the only subsidy granted being the balance that there may happen to be in favour of the Society in the management fund, and this is granted to the Secretary as a small recognition of his valuable services, the amount this year being £5 7s. 9d. When it is considered that every one of the 169 members is provided with a separate balance sheet annually, showing the exact amount that is banked to his credit, apart from the ordinary routine of book-keeping under the three separate heads—Benefit Fund, Benevolent Fund, and Sick Fund—it will be conceded that it is quite incommensurate with the services rendered as estimated on a strict commercial basis. Mr. McElroy, in fact, works not for gain, his chief reward, as he stated in his modest response to the enthusiastic vote of thanks accorded, being the luxury of being able to grant relief in sickness, and to minister to the pressing needs of the widows and fatherless in the time of sorrow that they may be called to endure. According to the rules of the Society he is entitled to a more adequate recompense, but this is waived in the interests of the members.

Although the constitution of the Society has been previously described in these columns, its main features may fittingly be recapitulated as reminders to old and as information worthy of the attention of new readers. This cannot be more concisely given than in a few citations from the rules. First we observe that—

"In this Society there are no entrance fees or fines for non-payment of subscription. Rule 14 especially should be noticed.

"No fund is provided for funeral money, as every member provides for this event by investing his own capital at interest. See Rule 16.

"Attention is particularly called to the Benevolent Fund. See Rule 18. This rule should be carefully read in order to appreciate the many benefits to be derived."

From the table of contributions and benefits we find that for insuring 10s. 6d. per week for twenty-six weeks members pay to the Sick and Deposit Fund 2s. annually, to the Benevolent Fund 2s. annually, and to the Management Fund 2s. 6d. annually. For insuring 16s. weekly the payments are 3s., 2s., and 2s. 6d. respectively.



"After twenty-six weeks full allowance, half the amount is allowed for twenty-six weeks more, he is then transferred to the Benevolent Fund, to receive such sum as the Committee deem fit. During the time he is on the Benevolent Fund no money is taken from his deposit. See Rule 14. No sum is provided for at death, as the member's deposit (see Rule 16), with the interest accumulating, will more than counterbalance any funeral money. Should any member die in straitened circumstances, the Committee are empowered to assist the widow and children (if any). See Rule 18. After attaining seventy years of age the member ceases to pay into the Sick Fund at all, and he is provided for from the Benevolent Fund in case of sickness or distress, irrespective of any sums he may have invested. See Rules 14 and 18."

Relative to the constitution of the Society, Rule 3 states:—

"That this Society shall consist of an unlimited number of members who follow the calling of gardeners, whether in nursery gardens, private gardens, market gardens, or seed warehouses; none other but gardeners to be eligible to become deposit members and recipient of relief from the Sick and Benevolent Fund."

The admission of members is made clear in Rule 13:—

"That no person shall be admitted a member of this Society under the age of eighteen or above the age of forty-five years; and has worked not less than three years in a garden. Any gardener wishing to become a member of this Society shall forward to the Secretary his name, age, and residence, and whether married or single; also accompanying it, if required, procured at his own cost, a copy of the register of his birth (or baptism if before the register was first used), or some other evidence as to his age which shall be satisfactory to the Committee, and a certificate from a properly qualified medical practitioner as to the state of his health, this certificate to be forwarded in a sealed cover if the surgeon deems it advisable. If residing at a distance from London the medical certificate to be countersigned by a clergyman of the Established Church, or a magistrate, or a well-known gardener or nurseryman, as would be most convenient, that there may be no doubt as to the right person being described."

Rule 14 points out—

"Whilst a member is in receipt of sick-pay, no larger amount than two days' sick-pay monthly may be received from him, but at all other times he may pay in any sum he can afford to lay by, and the same will be carried to his account as stated in Rule 16. As all members pay the same contributions, and no entrance fees are required, a member's deposit, while he is in receipt of sick-pay, shall be liable to the following deduction, for the benefit of the Benevolent Fund, viz.:—For every 1s. he receives, a deduction of one halfpenny, if he was under twenty-five years of age when admitted; 1d. if between twenty-five and thirty-five; 1½d. if between thirty-five and forty-five."

"The payments in case of sickness to be made in full from the Sick Fund for twenty-six successive weeks, half the amount for the next twenty-six weeks, providing the member's deposit can supply the above deductions; if not, and his sickness continues, he shall be considered as permanently disabled, and transferred to the Benevolent Fund, and he will not again have a claim for sick-pay from the Sick Fund until he has been free from illness for six months."

"Any member allowing his subscription to fall twelve months in arrear will be considered to have left the Society, and his account will be closed in the books; he will not lose his deposit—it will not, however, be paid to him, but be retained by the Society until he attains the age of sixty years; or should he die before that age be paid to the person nominated by him; the amount paid will be the sum total that stood in his name at the time of his allowing his subscriptions to fall in arrear; all interest on such amounts after this period will be handed to the Benevolent Fund."

"Should the amount of sickness during any one year be more than the subscriptions of members will defray, the deficiency to be deducted from each member's deposit in equal proportions."

"No payments will be received from any member on account of the Sick Fund after he reaches the age of seventy years, and he ceases at that age to have any claim on it in case of illness, being provided for by the Benevolent Fund."

According to Rule 15:—

"A member is considered sick and entitled to sick-pay when he is wholly unable through illness to do his usual work. No member to be entitled to sick-pay until he has contributed twelve calendar months. . . . If the sickness of a member is not such as wholly to disable him from work, or if he becomes convalescent and able to earn a little, though still unable to follow his customary employment, the Committee may, if they think fit, on a recommendation in writing from a properly qualified medical practitioner, allow him to do such work as he can, and make a proportionate deduction from his sick-pay."

We now come to a distinct and very important provision—namely, that the surplus of every member's contributions, after the yearly demands on the Society for sickness, &c., are met, is invested for him, and the sum, with all interest accruing, is his own property absolutely, payable to him if he attains the age of seventy years, or to his nominee (whom he appoints when joining) whenever his death may occur. That is the substance of Rule 16. As examples of its practical working we inspected the account of one of the oldest members, which amounts to nearly £50, the yearly interest on which is a substantial approach to the amount of his contribution. That is the member's own money, and will go on increasing as long as he contributes. The total share of liability of each 16s. a week member is this year 2s. 5d.; of 10s. a week members, 1s. 10½d., their payments beyond that going to their deposit accounts. An example of a member's deposit being actually paid during the year to his nominee is afforded in the case of the late Mr. Edward Rowe, who died at the age of forty-six, and whose widow received £34 12s. 3½d. apart from the sum of £8 16s. paid during the member's illness."

Rule 18 governs the Benevolent Fund, and is worthy of being quoted in its entirety, as follows:—

"This fund shall consist of all moneys handed over by the United Horti-

cultural Society in conformity with their rules; also the annual contributions of members, as stated in Rule 14, and the donations of patrons and contributions of honorary members specially given for this purpose. Honorary members' subscriptions to be one guinea per annum, or ten guineas paid in one sum."

"The sum so raised year by year shall be applied towards rendering assistance to members who have passed their seventieth birthday, to such an amount as the state of the funds will admit and the Committee deem advisable, consideration being given to those who have used the best exertions to lay by a provision in old age by keeping a good deposit balance."

"Every member also who has the misfortune to be ill for a longer period than fifty-two weeks will be eligible to receive relief from this fund, the Committee to determine the amount to be allowed. Subscribers of 21s. and upwards per annum, being professional gardeners, shall also be eligible as recipients from this fund, should they be at any time placed in such a position as to require assistance."

"Should any member or subscriber, being a gardener, die in straitened circumstances, leaving a widow or widow and children, the Committee shall, on the case being brought before them, investigate it, and afford such temporary relief as they may deem requisite and necessary."

"Should any member receiving sick-pay from the Sick Fund meet with any accident, such as a broken limb or dislocation, the Committee shall have power to pay such sum towards his surgeon's account as they may deem expedient from this fund."

"The Committee of Management to have power to relieve members of this Society from this fund as they may deem advisable."

That this fund is freely applied when necessary is shown by the case of Mrs. Rowe, who died within three months of her husband, leaving four children quite unprovided for (one seriously afflicted), the Committee, with a full knowledge of the circumstances of the case, granted £20 from the fund in question to meet the urgent wants of the orphans."

It will be seen that the Society is established on a broad basis for the benefit of its members; and that it is sound is testified by the results. As intimated, whatever surplus there may be in the Management Fund is granted to the Secretary. It is the Benefit and Benevolent Funds that are the test of stability; and last year the amount of the former was £1986 2s. 7½d.; this year it is £2241 6s. 4½d., while the Benevolent Fund last year was £972 15s. 10½d., whereas this year it is £1038 2s. 11d. A sum of £300 has been invested in 3 per cent. consols during the year, making a total of £3300. And all the business of this healthy society is transacted at a cost (including the gratuity to the Secretary) of £23 16s. 1½d., this being the total of the Management Fund. If by any means this fund could be increased, there is little doubt that a great accession of members might be secured, and the institution become in a broad sense a National Gardeners' Benefit Society. Possibly, if honorary members had the option of contributing to this fund their numbers might be increased; at present they are disproportionately small—namely, William Marshall, Samuel Morley, James Brand, H. J. Atkinson, and A. H. Lancaster, Esqs.; Messrs. Clay & Levesley, R. Dean, W. Paul, G. Paul, Jas. Veitch & Sons, B. S. Williams, and J. Wright. A donation of £10 10s. constitutes a life membership, honorary members' annual subscriptions being £1 1s."

The election of the Committee—Messrs. Cole, Scott, Coates, Wood, Morland, and Campbell—with sundry votes of thanks, brought the meeting, which was largely attended, to a close."

## STRAWBERRY PLANTS IN WINTER.

I WAS pleased to see the contribution from Mr. T. Challis on this subject (page 61). I am, however, sorry he did not state as near as possible the time he stacked his plants in autumn and the time they are stood upon the surface in spring. This is a matter of some importance in carrying out this principle of preserving the plants in winter. If stacked too early in autumn they become unduly dried even before the approach of severe weather, but this in a measure I know could be guarded against. Again, in early spring, even before the winter has well passed, I have seen the plants almost shrivelled by the influence of drying winds. I have tried this system, and the last time I stacked the plants I took them all down early in February and found fully three parts of them dust dry, this being the result of a week's drying winds. For the plants to be in this condition during the resting period is not natural. Are plants placed in the soil outside in this condition during the winter? They certainly have more moisture at the roots during that period than probably at any other. I have just examined the condition of the soil of the plants plunged upright in pots and that of those planted out, and there appears very little difference, if any."

Lately we have had some peculiar weather here—frost, snow, rain, and frost again day after day at intervals of a few hours. Such weather, frost and thaw in rapid succession, is certainly bad for any plant whether in a pot or planted out; but during the seven years I have practised the system advocated I have never found the plants injured in the manner described by Mr. Challis. I reside in a very damp wet locality, and have up to the present time found the plan of plunging the pots upright to answer perfectly, and therefore I have no reason to change it for one liable to subject the plants to a system of drying which I consider unnatural to the Strawberry.—A NORTHERNER.

## MILDEW ON ROSES.

HAVING read much in the Journal about mildew on Roses for the past two seasons is the only excuse I have for giving you my experience on this matter. Eleven years ago I took my first charge of a garden, which was in the county of Durham. I went there on the 4th of June, and found about fifty pot Roses so badly infested with mildew that I



thought it almost impossible for them to do any good that season. I placed them all together into a light airy house, shortened the shoots as far as I thought necessary, syringed them twice a day forcibly with cold water, and watched them carefully that they had sufficient water at the roots. Signs were soon noticed of buds starting out of one or two-year-old wood, and also from the base of that season's wood. At the end of August I had them with clean heads of bloom. The next year we increased our stock and started syringing early, and kept on all the season and during the nine years I had charge we had no more mildew.

I left two years ago this spring to take charge here, and I found one house of Roses in pots and planted out, with about 800 in beds and borders (in the gardens), and that autumn we started a second house of Roses in pots and planted out. Having a good force of water laid on from the lawn in all the houses I got two lengths of Merryweather's red roller pipe with a rose at one end, and made it to fit our taps in the houses, and gave our Roses the full force of water over and under them just as it comes from the pipes twice a day after February is out, and I have had no mildew the last two seasons. Our inside Roses will be started this week, and will be syringed once a day for this month, after which they are syringed twice a day till September. Our Roses inside are grown for cutting, and we cut every morning before the syringing, so that the water never spoils our blooms, but keeps them free from green fly and mildew. Our houses are light and airy, and the Roses are fed with manure.

The outside Roses are treated similarly once a week after May is out—that is, in fine weather. They are top-dressed with manure, and they have had no mildew on them the last two seasons. I hope, with the same treatment, to keep the Roses as free from mildew in the future as I have done in the past.—E. H. BRADLEY.

#### BIRMINGHAM GARDENERS' IMPROVEMENT SOCIETY.

I HAVE been requested by Mr. Latham and other friends to ask the favour of publicity in the Journal for a notice of the proposed Society as per enclosed. It was an admirable representative meeting, and the Mayor gave much excellent advice and fully entered into the spirit of the meeting: 170 gardeners and others have already become members, and a much larger number will join. The proposal to establish such a Society was made at the annual dinner of the British Chrysanthemum Society by Mr. J. Hughes, the Secretary, and was warmly taken up. Appended is the report.—W. D.

Last evening, in the small Lecture Theatre of the Birmingham Midland Institute, a well-attended meeting of gardeners resident in Birmingham and the neighbourhood was held for the purpose of forming a gardeners' mutual improvement society. The Mayor presided, and there were also present on the platform Messrs. W. B. Latham, R. H. Vertegans, J. Pope, W. Spinks, W. Dean, J. Horton, A. Grice, J. Cole, and J. Hughes. The Mayor, in opening the meeting, said that he was very glad to find, both from the large attendance and from the support which Mr. Hughes had obtained, that the suggestion to form a mutual improvement society for the gardeners of Birmingham and its neighbourhood had met with very general acceptance from those who were most nearly interested. They followed a pursuit of very great interest. It was of such interest that many persons who were not in their way of business would be glad, if they could afford the time, to give up their own avocations and devote themselves chiefly to the cultivation of flowers and plants; and he thought it might be quite as interesting to those who depended upon it for a livelihood as to the amateur. It was a pursuit, moreover, which was interesting and beneficial just in proportion as it was approached with intelligence and not with stupidity. If a gardener went to his work with a cultivated intelligence, ready to accept new ideas, he would not only make an infinitely better servant to his master, and a much better and more respectable member of society, but have twice as much pleasure in his work as one who did it just as it came to his hand. (Applause.) There were among the gardeners of Birmingham men as well advanced in their craft as would be found anywhere, and therefore one approached the formation of such a society with confidence that men would be found who could work it. It was proposed, he understood, that they should have some room, as conveniently situated as possible, properly furnished, and, he hoped, to be in due time provided with a good library. (Hear, hear.) By the opportunities of conference which would thus be afforded, not only would those who were ignorant acquire knowledge, but those who had the very widest experience might be able to learn from some others who perhaps had had special means of information in particular branches. There were certain extensions which the society might make hereafter. The suggestion had been made that it should undertake the flower shows which had hitherto been held under separate management in the Town Hall. (Applause.) Union was strength, and the spring show might be managed with the Chrysanthemum show at very much less cost of labour and trouble. He was told that in other large towns, such as Liverpool and Manchester, there were already flourishing associations of gardeners, and he did not see why Birmingham should be any longer behind. (Applause.) On the motion of Mr. Dean, seconded by Mr. Latham, it was resolved that a Gardeners' Mutual Improvement Society be formed, with a managing committee of twelve members, to be elected annually. The resolution gave rise to some discussion, in which the study of botany was urged upon those present by several speakers. The subscription was fixed at 2s. 6d. per annum, and some donations to the library were announced. The meeting closed with a vote of thanks to the Mayor.

#### PLANTS CERTIFICATED IN 1885.

MR. W. BULL'S, CHELSEA.

FOR many years ornamental-foliage plants and Orchids have constituted two important specialities at Mr. Bull's King's Road Nursery, and we have a good illustration of this in the relative numbers certificated

at the leading exhibitions during the past year. Of a total of twenty so honoured, eight were "foliage plants," as they are termed, the same number were Orchids, and the remaining four were an *Aristolochia*, an *Eucharis*, a *Hæmanthus*, and an *Azalea*, to be noticed presently. Although the chief features are thus shown, they are by no means the only ones, for extensive collections are grown of *Pelargoniums*, *Azaleas*, *Rhododendrons*, *Chrysanthemums*, and miscellaneous flowering plants. Of the *Rhododendrons* in particular there are some thousands of seedlings, hybrids of the *R. javanicum* and *R. Brookeanum* types, that may be confidently expected to produce some beautiful novelties.

Orchids occupy much the greatest space, and it will be therefore fitting to refer to those certificated first. Taking them in alphabetical order we have *Angræcum* or *Aeranthus Leonis*, which was shown at South Kensington on the same day by five orchidists. This Orchid will be principally valued for its floriferous habit, and the flowers being white will also render it a favourite with many. As a free-growing plant that anyone can cultivate in moderate heat it is undoubtedly worthy of attention, though less imposing than the remarkable *A. sesquipedale*, to which some have compared it. A trio of *Dendrobiums* come next in order, the charming and now well known *D. Ainsworthi* having been certificated by the Royal Botanic Society, though it was first honoured by the Royal Horticultural Society in 1874. It is strange it has never been shown at Regent's Park before, but stranger still if it has been exhibited and was never duly recognised until last year. *D. crassinode album*, a white-flowered variety of a favourite and easily grown Orchid, and a highly coloured variety of *D. nobile* entitled *insigne*, are both good additions to the list. *Lycaste Skinneri alba*, the valuable White *Lycaste*, a handsome Orchid with pure wax-like flowers of great substance. An exceptionally fine white variety has now been flowering in Mr. Bull's nursery for some time, and the flower is still in good condition, the sepals and petals broad and beautifully proportioned. All the varieties of *Lycaste Skinneri* are useful owing to the durability of their flowers, but the white one is specially so because it contrasts well with the more numerous dark forms, and it is scarcely rivalled amongst white Orchids for massive purity. *Masdevallia Wagneriana* is one of the dwarf small-flowered species, with rather pretty yellowish blooms, and might be associated with *M. Shuttleworthi*. A pair of *Odontoglossums*, *O. Insleayi splendens*, and *O. Rossi concinnum*, the former a grand variety with yellow flowers richly spotted with red, and the latter a pretty little variety with symmetrical flowers, the sepals and petals broad and rounded.

We may now briefly glance at the Orchids in flower at the present time, and although February is not quite the month for a brilliant floral display, several houses contain a good show of blooms, far better than could be expected. It also proves how useful Orchids are at a time when flowers are most welcome. The *Cattleyas* are in grand health and showing sheaths by hundreds, the flowers of some varieties being expanded, and their numbers will soon be increased. A group of *C. Trianae* varieties is prominent in one house, differing greatly in colour from the pure white *alba* through delicate rose and blush tinted forms like *bella*, *delicata*, *ampliatas*, *rosea picta*, *Vesta* and *tyrianthina* to the deeper coloured *illustris* and *Imperator*. *C. Percivaliana* is also represented by some richly coloured forms, and it varies considerably in merit. A deeply tinted variety of *L. anceps* is notable in one of the houses, as also is *L. Lindleyana* with pale sepals and petals and a blush lip. The free and long-lasting *L. alba* and its variety *L. Mariana*, with the rich and handsome *L. autumnalis atropurpurea*, are thoroughly useful Orchids, and it is astonishing how well they flower when receiving fairly careful attention.

Several *Odontoglossums* impart their attraction to groups in the houses, such as *O. mirandum*, a distinct form, with long narrow sepals and petals, brownish red in the centre, and clearly margined with yellow; *O. mulus*, barred with dark brown on a yellow ground; *O. hebraicum*, creamy white, dotted with brownish red; and *O. crispum*, superb in size and form. Of *O. Rossi* there is a group including some distinct and beautiful varieties. One form of *O. Rossi majus* is especially handsome, and well merits the three crosses on the label, which serve to distinguish it when not in flower. The ground colour is clear white, and upon this are a number of very dark reddish crimson spots that show up admirably, and with the pale yellow crest serve to render it one of the best we have seen. The others differ greatly in the size of the flower and the richness of the markings, but all are good, and the smaller flowers are generally the finest in colour. The plants of *O. vexillarium* are in excellent health, and will contribute to the floral effect later on; they are now as fresh and vigorous as anyone could wish to see. *O. Phalænopsis* is similarly satisfactory, both Orchids which are found difficult to grow by some persons, but which at Chelsea luxuriate in the London smoke. One of the chief points with these, as with other Orchids, is, in Mr. Bull's opinion, keeping the plants thoroughly clean; a little labour expended in cleansing them at stated intervals is well repaid, and is a practical illustration of the maxim that "Prevention is better than cure."

Many more Orchids might be enumerated, we can only note the following as flowering now. A new and fragrant *Dendrobium*, which is to be referred to a botanical authority for its name; *Angræcum citratum*, very free, small plants in thumb pots bearing four spikes of creamy-white flowers; *Saccolabium giganteum*, with a fine raceme, very sweet; varieties of *Lycaste Skinneri*, delicately and richly coloured; the useful *Ada aurantiaca*; several small-flowered but interesting *Masdevallias* like *M. polysticta*; *M. Etræde*, and *M. simula*, with the peculiar *Pleurothallis ornatissima*, which has small white filaments pendulous from the flowers, and giving them a strange appearance. *Cypripedium Lawrenceanum*, *C. Swartzianum*, *C. Argus excellens*, a bold, handsome variety; *C.*



hybridum, C. Danthieri, and C. Warneri are all in flower. In one house in the old nursery is a group of *Cœlogynes*, principally the Chatsworth variety, which has six, seven, and eight flowers in a spike, and the buds in opening have a brownish appearance outside, which readily distinguishes them from other forms. Amongst some *Oncidiums* in flower was *O. Phalaenopsis*, and a note on this must conclude the remarks on the Orchid collection. It is a charming species far too seldom seen; the flowers are white with bright purplish crimson blotches on the sepals and petals and at the lower portion of the lip.

The fine-foliage plants certificated were *Alocasia Sanderiana*, a bold

green, with bands of white from base to apex, a very distinct and striking plant.

The general collection of foliage plants is remarkably rich in Cycads, some extremely handsome specimens of all sizes being grown in the large conservatory. Ferns also are numerous; Palms, *Dracænas*, *Crotons*, *Bromeliads*, and *Aroids* of various kinds, such as *Dieffenbachias*, *Alocasias*, and *Anthuriums* occupy several houses.

The flowering plants comprised *Eucharis Mastersi*, a species with smaller flowers than *E. grandiflora*, but pure white and without the corona that some consider a disfigurement in the latter. *Hæmanthus*



FIG. 19.—ARISEMA FIMBRIATUM.

handsome plant, of an intensely dark green with strongly marked silvery veins. *Bentinckia condapanna*, a pinnate-leaved Palm, of elegant habit, the ribs yellow. *Caladium Comtesse de Maille*, one of the semi-transparent varieties veined with red and margined with green. *Euterpe plumosa* is a graceful, pinnate-leaved Palm, having as the name implies a feathery appearance, and *Oreodoxa plumosa*, another Palm, is similarly elegant in habit. *Sarracenia Atkinsoniana*, one of the *S. flava maxima* type, but really a hybrid between that and *S. purpurea*. The pitchers are tall and green with a broad lid and red veins. *Vriesia janeirensis variegata* is a *Bromeliad* with leaves 18 inches long and 3 inches broad, bright

*Kalbreyeri maximus*, a variety with large globular heads of brilliant scarlet flowers. *Aristolochia elegans*, a curious species of Birthwort with saucer-like flowers 3 inches in diameter, white marbled with crimson purple; and *Azalea Illuminator*, one of the *amoena* type with rosy purple flowers of good size. An *Azalea* now flowering in the nursery is very attractive, and though not a novelty it is by no means common; this is *A. balsamiflora*, which has reddish salmon-coloured double flowers of excellent form, very neat and well adapted for cutting. Some fancy winter-flowering *Carnations* are also bright and pleasing, three new varieties being especially notable—namely, *J. Veret*, crimson streaked on a light



ground; Claire Varichon, shaded with pale pink; and Jean Naturelle, crimson shaded, large and handsome. Flowering Aroids, like *Anthurium Andreanum* and *A. Schertzerianum*, are much grown, and one group of another genus, *Arisæma*, not quite so well known, includes a species, *A. fimbriatum*, of very distinct characters. Like others of the same genus, it is tuberous, bearing trifoliate leaves and spathes striped longitudinally with white on a purplish ground. The spadix is long and pendulous, and densely clothed with fine dark filaments. These characters are shown in the woodcut (fig. 19) lent by Mr. Bull, which also conveys a good idea of the general appearance of other allied species.

### NOTES ON GRAPES.

#### MUSCAT OF ALEXANDRIA AND BOWOOD MUSCAT.

FOR ten years I have been a careful reader of the Journal, and having profited much by its teachings I venture to give my experience with the above Vines. Five years ago I took charge here, and found in a mixed Muscat house one Vine of Bowood Muscat and three of Muscat of Alexandria, two grafted on different stocks, and one on its own roots, Mrs. Pince, Madresfield Court, and Muscat Hamburg being also represented. The last named was discarded owing to its colour. I have each year noted that Bowood Muscat was ten or twelve days earlier than Muscat of Alexandria, and produced bunches more freely, set its berries better, and is more robust in growth. I, however, fail to see any difference in the shape of the berries, though Bowood swells its fruit rather larger than its parent. I will give my experience of last year. In May, just as our Muscats came into flower, our boiler, a large tubular one, broke down, and for twenty-five days we had no fire—a very anxious time for me, as the thermometer stood at 44° several times; but one morning, finding it had fallen to 41°, I got desperate, in fact gave up gardening and turned engineer and general labourer until the work was completed, and informed my employer that our crop would be lost; but although Muscat of Alexandria and Mrs. Pince failed to set a full crop, I had a lot of thinning to do with Madresfield Court and Bowood Muscat. The second week in September the Bowood was ripe, and on the rod bearing sixteen bunches, averaging 2½ lbs. each, you could not point to one deformed bunch. Madresfield Court coloured well, without any sign of cracking, while Muscat of Alexandria and Mrs. Pince failed to stone the berries they had set. Any Grape-grower could not fail to see a difference in the varieties as they grow here, but put them—a bunch of each—on a stand, and show them as two sorts, and I will leave it for better judges to point out the difference in the berries. Although I have seen Muscat of Alexandria and Bowood Muscat shown in a collection of four varieties, and carry off chief honours.

As I am going to try sulphate of ammonia on our Vine borders, I shall be glad to hear if any of your correspondents have used it, and if so, in what proportion and with what result.—G. G.

### ROYAL HORTICULTURAL SOCIETY.

#### ANNUAL MEETING.—FEBRUARY 9TH.

THE annual general meeting of this Society was held on Tuesday last in the crush room of the Royal Albert Hall, there being fairly good attendance of Fellows and the following members of the Council were also present:—Sir Trevor Lawrence, Bart., M.P., presiding; the Hon. and Rev. J. T. Boscawen, W. Lee, Esq., G. F. Wilson, Esq., F.R.S., Colonel Trevor Clarke, Dr. Robert Hogg, W. T. Thistleton Dyer, C.M.G., Professor Michael Foster, E. G. Loder, Esq., Major F. Mason (Secretary), and William Haughton, Esq. (Treasurer).

Sir Trevor Lawrence took the chair at 3 P.M., and the proceedings commenced by the Secretary reading the notice convening the meeting and the minutes of the last general meeting. The names of fifteen proposed Fellows were then read and their election ratified in the usual way. Dr. M. T. Masters and Mr. James Douglas were then appointed scrutineers of the ballot for offices and new members of the Council, the result being as was subsequently announced that the following were elected as officers for 1886:—President, Sir Trevor Lawrence, Bart., M.P.; Treasurer, William Haughton; Secretary, William Lee (Downside); Auditors, John Lee, James F. West, William Richards. To fill the vacancies on the Council caused by the retirement of G. T. Clark, F. Du Cane Godman, F.R.S., and Sir P. Cunliffe Owen, K.C.M.G., C.B., C.I.E., the following gentlemen were elected:—Sydney Courtauld, A. B. Mitford, C.B., and Baron Schröder.

This concluded the principal formal introductory business, and Sir Trevor Lawrence then rose to make a few comments upon the Annual Report and the position of the Society. He stated that the Council regretted they had only recently been able to circulate the terms of agreement between themselves and the Committee of the Indian and Colonial Exhibition for the present year. There was a serious curtailment of the Fellows' privileges in the tickets of admission being rendered non-transferable; this was the only difference, but it was an important one, and the delay had been caused by the efforts made to procure the same terms as in previous years. The Exhibition Committee had, however, been unable to agree to that course, and he (Sir Trevor Lawrence) believed that the matter had been referred to the Financial Committee, and definitely refused on the ground of the heavy expenses incurred in the past years. The maintenance of the Garden had been a great expense, and in 1885 the autumn weather was so unfavourable the number of visitors had been reduced considerably. For these reasons the Committee of the Exhibition for 1886 felt it was absolutely necessary to conduct their arrangements as economically as possible, and in consequence the Fellows of the Royal Horticultural Society had to submit to this restriction.

The President then referred to the fact that two meetings were called last year to consider the desirability of holding an international horticultural exhibition in 1887. The Council felt, however, that the financial responsi-

bility of such an undertaking would be too great unless it was combined with something else. He believed that there was a general feeling that the time named would be a suitable one for an exhibition of the character proposed, as a considerable period had elapsed since one had been held in London, and he thought that if the way could be seen to carrying a scheme into execution, the Society would receive the hearty support of both amateurs and nurserymen throughout the country. It was considered that an exhibition like that named would, if held in the South Kensington Gardens, have to be accompanied by attractions similar to those provided in the three past years, and that this would be outside the Society's province. The idea had not been abandoned, it was only in abeyance, and it was hoped that some plan might yet be devised to permit its realisation.

Referring to the lists of honorary and foreign members, Sir Trevor Lawrence stated that steps had been taken to increase the numbers of these Fellows, with the result that some highly important additions had been made, including many distinguished scientific horticulturists and botanists in various parts of the world. As one of the chief events of the past year, the Orchid Conference demanded a few remarks. It had proved a decided success. The exhibition in number and variety of plants, and the cultural skill indicated by their healthy condition, was such as it would have been impossible to obtain in any other country. The Conference itself was highly satisfactory; the papers read and the discussion which followed were interesting and instructive, but special praise was accorded to the paper on the "Hybridisation of Orchids," read by Mr. H. J. Veitch. Another important gathering, the Pear Conference, had been a similar success in the number of exhibits, and the President thought that such shows were entitled to be considered of national importance. More attention was being directed to the culture of fruit and vegetables as an important portion of the food supply and as a profitable industry. The official report of the Conference was being prepared by Mr. A. F. Barron, and would form a valuable addition to our knowledge of Pears. The Royal Horticultural Society has undertaken to assist the Committee of the Indian and Colonial Exhibition as far as possible by taking charge of Ferns and other plants required to furnish the courts and galleries, and everything was being done to get the plants into the best condition. The Primula Conference, which is to take place next April, was referred to, and it was stated that much interest centred in it, both here and on the continent, and it was confidently expected to prove a success. As to the nomenclature of Orchids, a subject which had been left over from last year, nothing had been done at present. The existing system was known to be faulty, but it was difficult to suggest a remedy. In the opinion of Sir Trevor Lawrence the first steps to be taken should be in the direction of expunging proper names; he considered it a mistake to associate the names of persons with Orchids.

The President next adverted to what he said was a matter of great importance—namely, the position of the Society at South Kensington. It was becoming more and more evident that it will not be possible to continue as at present. The Exhibition for this year was considered to be the last of the series, and nothing had been arranged for next year, neither was there any definite plan for the disposal of the gardens, but it was quite possible that in a few years they would be built upon. The position held by the Royal Horticultural Society could not be considered as a dignified one, but it was evident that the interest in horticulture was increasing, and that in no part of the world is so much done in its behalf as in Great Britain. The Society had done good work, and he (the President) had no doubt that if they could see the way to establishing themselves upon an independent footing they would be supported in a creditable manner by the horticulturists of this country. No doubt the vitality of the Society will enable them to overcome all the difficulties due to their connection with South Kensington, for at no period of the Society's existence had there been a larger number of gentlemen upon the Council interested in scientific and practical horticulture. In conclusion, Sir Trevor Lawrence remarked that it had been arranged to hold a provincial show at Liverpool this year, they had received an invitation from the Mayor and Corporation, and the Botanic Garden was to be placed at their disposal for the purpose. There was every reason to believe that it would be a great success.

This concluding statement was received with considerable applause, and it is evident that the holding of provincial shows gives general satisfaction. Mr. Liggins inquired why an Assistant-Secretary had been appointed after it had been stated at the last General Meeting that the funds were too low for the purpose. In reply, Sir Trevor Lawrence observed that the course had been adopted because it was found that the work was accumulating too rapidly to be disposed of by the Honorary Secretary, and the greater portion of the salary had been subscribed by the members of the Council and friends, thus enabling the work to be cleared up without materially increasing the Society's expenses.

Mr. Wolley Dod moved the adoption of the Report in a few appropriate words, and in seconding it Mr. Johnson referred in laudatory terms to the excellent work performed at Chiswick. He regretted that it was not more generally known, as he felt sure that if it were the Society would take a higher position. He suggested monthly reports of the work done in the Garden, and thought that more persons might be induced to visit it.

The President then read the results of the ballot as already given, and proposed that the thanks of the meeting be conveyed to the Auditors for their services; also to Major F. Mason, on his retirement from the secretaryship, for the valuable assistance he had rendered them, both propositions being carried unanimously. He also paid some well deserved compliments to Mr. A. F. Barron. He considered he was the right man in the right place, and that it was impossible to overrate his labours in behalf of the Society.

Major Lendy proposed that a Committee be appointed to draw up some plans for the future. In reply to which the President remarked that the Council would consider the matter, and when they had come to some decision they would call a meeting, and that would answer the same purpose as the Committee Major Lendy suggested. A few other observations were made by Fellows present, one commenting rather strongly on the injustice of rendering tickets non-transferable, and Mr. Smeeth thought that the Society should get clear of the Commissioners as soon as possible. Certain Fellows who have not paid their subscriptions were then formally removed by vote, and a hearty unanimous vote of thanks to the Chairman, proposed by Professor Foster and seconded by Mr. Cheal, brought the proceedings to a close.



Facilities were again afforded to the International Potato Exhibition Committee for testing new varieties of Potatoes.

To Establishment Expenses:—	Cash paid.		Debts payable.		Totals.	
	£	s. d.	£	s. d.	£	s. d.
Salaries.. .. .	322	0 2	25	0 0	347	0 2
Wages .. .. .	61	6 0			61	6 0
Printing and Stationery.. ..	112	15 8	29	16 0	142	11 8
Postage .. .. .	73	13 9	14	14 0	88	7 9
Gas .. .. .	13	1 9	5	11 7	18	13 4
Miscellaneous .. .. .	144	15 2	17	18 6	162	13 5
					820	12 4



*To Special Expenses in Relation to Horticulture:—*

Plant and Seed Distribution ..	207 0 0		207 0 0
Fruit and Floral Committees ..	112 5 6	3 12 0	115 17 6
Grants In Aid ..	110 0 0		110 0 0
National Apple Congress Report ..	30 0 0		30 0 0
Frost Reports ..	45 0 0		45 0 0
Orchid Conference ..	36 19 8	9 9 0	43 8 8
Primula Conference ..	2 19 0		2 19 0
Pear Conference ..	24 18 6	25 10 0	50 8 6
		.....	607 13 8
<i>Chiswick Garden Expenses:—</i>			
Rents, Rates, Taxes, and Insurance ..	238 5 1	29 2 4	267 7 5
Labour ..	942 9 6		942 9 6
Implements, Manure, &c. ..	146 17 10	23 3 0	170 0 10
Coal and Coke ..	155 15 6	27 4 0	182 19 6
Repairs ..	81 15 1	34 15 7	116 10 8
Trees, Plants, Seeds, &c. ..	96 15 0		96 15 0
Superintendent's Salary ..	150 0 0		150 0 0
Water ..	8 0 8	11 15 0	19 15 8
Miscellaneous ..	129 16 8	2 18 9	132 15 5
		.....	2078 14 0
<i>Kensington Garden Expenses:—</i>			
Superintendent's Salary ..	100 0 0		100 0 0
Labour ..	542 1 5		542 1 5
Repairs ..	31 1 6	3 9 3	34 10 9
Coal and Coke ..	34 2 0	18 12 0	52 14 0
Implements and Manure ..	16 10 0		16 10 0
Miscellaneous ..	3 0 0		3 0 0
		.....	748 16 2
<i>Exhibitions:—</i>			
Advertising ..	87 1 0	8 18 0	95 19 0
Prizes and Medals ..	33 13 0	13 1 9	46 14 9
Ditto do. Inventions Exhibition ..	829 15 6	74 12 9	904 8 3
Bands ..	25 16 0		25 16 0
Superintendent of Flower Shows ..	25 0 0		25 0 0
Labour ..	113 4 11		113 4 11
Judges' Fees ..	34 13 0		34 13 0
Miscellaneous ..	7 6 11	10 17 6	18 4 5
Police ..	29 12 0		29 12 0
Schedules ..	35 16 9		35 16 9
	£5195 4 6	390 0 9	.....
			5385 5 3

## INCOME.

	Cash received.	Debts receivable.	Totals.
	£ s. d.	£ s. d.	£ s. d.
By Annual Subscriptions ..	3200 8 0	75 12 0	3276 0 0
" Prosenade Shows ..	26 2 6	.....	26 2 6
" Inventions Exhibition Maintenance ..	600 0 0	.....	600 0 0
" " Prizes ..	904 8 3	.....	904 8 3
" National Apple Congress Report ..	12 6	11 17 7	12 10 1
" Garden Produce ..	410 9 5	19 12 6	430 1 11
" Packing Charges ..	52 19 0	.....	52 19 0
" Miscellaneous Receipts ..	30 10 9	.....	30 10 9
" Orchard Conference, Catalogues and Advt's. ..	13 7 0	17 18 6	31 5 6
" Schednle Advertisements ..	.....	39 11 0	39 11 0
" Dividends, Davis Bequest and Parry Legacy ..	61 13 8	.....	61 13 8
	£5300 2 1	£164 11 7	£5464 13 8

" Balance to General Revenue Account ..	120 11 7
	£5585 5 3

We have examined the above Account with the Books and Vouchers, and we find the same correct.

27th January, 1885.

JOHN LEE,  
JAS. F. WEST,  
W. RICHARDS, } Auditors.

## GENERAL REVENUE ACCOUNT, 31ST DECEMBER 1885.

DR.	£ s. d.
To Annual Revenue Account, Balance for the year 1885 ..	120 11 7
" Balance carried forward ..	2362 15 3
	£2783 6 10
CR.	£ s. d.
By Balance of Revenue Account brought forward 1st January, 1886 ..	2,596 17 6
" Capital Expenditure Account—Balance of that Account transferred ..	186 9 4
	£2783 6 10

We have examined the above Accounts with the Books and Vouchers, and we find the same correct.

27th January, 1885.

JOHN LEE,  
JAS. F. WEST,  
W. RICHARDS, } Auditors.

## THE DINNER.

In the evening the Council and several members of the Society and friends, to the number of about fifty, sat down to an elegant dinner, provided by Messrs. Spiers & Pond, at the Criterion, Piccadilly, Sir Trevor Lawrence, Bart., M.P., President of the Society, ably presiding. The number of guests would probably have been greater but for the somewhat hurried manner in which the arrangements were made, and there can be little doubt, when the agreeable nature of these annual social gatherings becomes more widely known that they will be correspondingly popular and largely attended. Amongst the company we observed Mr. Mitford, C.B., of the Board of Works, Mr. Thistleton Dyer (Kew), Professor Foster, Mr. Bateman, F.R.S., Dr. Allman, Mr. Baker (Kew), Mr. Harvey (Liverpool), Dr. Duke (Lewisham), Mr. Crowley (Croydon), Rev. W. Ewbank, Dr. Hogg, Mr. Veitch, Mr. Barr, Mr. Bunyard, Mr. Matthews, &c.

After the usual loyal toasts were proposed in graceful terms by the President and duly honoured by the assembly, Mr. Dyer, in an admirable speech, which was listened to with the most attentive appreciation, proposed "Prosperity to the Royal Horticultural Society." He adverted to the deep interest he felt in the welfare of the Society as the representative head of horticulture in the kingdom, to the great and increasing public taste in the cultivation of plants that is apparent, to the unique position occupied by this country as a mercantile nation, in the introduction of plants from distant shores all over the world, to the high and finished examples of culture to be seen in Great Britain, and the importance of maintaining this excellence; he also pointed out that the Council of the Royal Horticultural Society was representative and comprehensive, that the "new departure" in the annual dinner could not fail to have a most wholesome influence in promoting kindly feeling and mutual trust between Fellows and officials, then by unity of

effort the Society would exert a great influence in the future, as it had within its grasp all that was great, dignified, and beautiful, and with the new impulse given that day it would be more firmly established as the custodian of the great industry it was established to promote, and he cordially wished it prosperity. Mr. Dyer's truly excellent address was received with much applause.

Mr. Mitford, in proposing success to horticulture, referred to the recent appointment of Mr. Dyer, who, he had not a doubt, was from every point of view the proper man to succeed Sir Joseph Hooker; he referred to the two generations of Hookers who had conducted the affairs of Kew so ably, and the Board of Trade wished there had been a third; but the next best successor they were certain was found in Mr. Dyer, an appointment that had given the greatest satisfaction. As he (Mr. Mitford) was not a cultivator, he thought it would be wisest to say but little on that subject, but to confine himself to the expression of his pleasure in being present, and his earnest hope that horticulture might flourish.

Mr. Harvey, in responding, observed that if the Royal Horticultural Society intended to be truly national it must go to the provinces—to the north. He asked the company to look at Scotchmen to see what they had done, and to Lancashire with its ungenial climate, and note the progress there. The worse the climate, he thought, the greater the love of gardens, because of the pride that appeared to be taken in overcoming difficulties. Liverpool had done, and was doing, something for horticulture, and would do more. Many Orchids had been imported there, and Cattleya Mossiae was named after a Liverpool lady. Speaking for the north, he said they could do very well without any Orchid Society, and hoped he should not see one, but would rather see special committees appointed by the Royal Horticultural Society to devote attention to separate branches of horticulture. Mr. Harvey's remarks appeared to meet with warm and very general support.

Professor Foster, in proposing "Our Guests," appropriately quoted the line "Words flow apace if you wish to complain." This was in reference to complaints in the press, an amusing instance of which he had seen in the proposition for an Orchid Society, one writer advocating it on the ground that the Royal Horticultural Society does not adequately attend to these plants; another because the Society is favourably disposed to promoting their culture. But referring to the guests, with Mr. Ewbank on his left and Mr. Baker on his right, words did not flow apace when he desired to express the pleasure the Council had in their company. Mr. Ewbank he described as a horticultural phenomenon, because he made everything grow in his garden in which he took such great delight, and he could think of no more appropriate description of him than a "happy gardener." Mr. Baker was also a phenomenon in his capacity for naming plants. Ten thousand names, he had been told, was as many as could be stored in one brain; still, with his wonderful aptitude, Mr. Baker was striving to reduce names. Such men as their guests were wanted as Fellows. The Royal Horticultural Society had for some years adopted a wrong system. They had gone in for numbers, regardless as to what proportion were horticulturists. He hoped they would start fresh from to-day and soon get from South Kensington, live no longer a parasitic life, but strike root for themselves and not live on the juice of others. They wanted a room for their meetings with ready access to the incomparable Lindley library, and surely that could be found. To return to the "guests." As he had named two, and could only ask one to respond, he decided by a toss, and must call on his right hand friend.

Mr. Baker, who met with a warm reception, observed that on-lookers could often see the most of the game. He could see how important it was for botanists and horticulturists to go hand in hand. Dried plants were not always satisfactory for purposes of nomenclature, as new introductions were constantly arriving they required to be grown. He observed that it would be a shame for England if the Royal Horticultural Society should fall into an inferior position now that the interest in gardening was greater than ever it was before. Regarding plant names, he observed that while botanists were trying to reduce them, horticulturists, and particularly specialists rushed along in their own way, manufacturing names without any systematic classification. If there were twenty Daffodils, for instance, there appeared to be a disposition to magnify them into 500, and the same with Primulas. He would like to see the Royal Horticultural Society in the position of interpreter, standing between gardeners and botanists, yet embracing both, and he trusted the Society would have a great and useful future career.

Mr. Bateman, in rising to propose the health of the President, referred to him not only as the chief of the Society, but chief over a great family of plants—Orchids, which Rumphius had described as a "Royal Race." He graphically described the discovery of Cattleya Lawrenceana; and adverted to plant names, observed that twenty-two years ago a charming Princess came to this country and a charming Odontoglossum flowered at the same time, which he, as a loyal subject, named Alexandrea. He was found fault with; but if he erred so did Reichenbach, who called it Bluntii. It may be a variety of O. crispum; but why, since the variety is so distinct, not adhere to the distinctive name and call a beautiful plant after a beautiful lady? The name Wellingtonia is wrong. It should be Sequoia; but the country would go to war rather than lose the familiar name, and he would go to war for Alexandrea—crispum appearing as if it had reference to an old woman in the reign of Queen Elizabeth. There were stated to be 6000 distinct Orchids in cultivation, and if they increased to 10,000 he wished the President to see all his subjects and be able to call them all by their names.

Sir Trevor Lawrence, in responding, alluded to the freshness and healthy flavour of the speeches and the Society, remarking that he was supported in his position by gentlemen who would add lustre to any institution. He hoped the parasitic existence that had been alluded to would terminate, believing there are plenty of real horticulturists in the country to support the Society. He agreed with Mr. Harvey that an Orchid Society is not needed; indeed, he did not believe in frittering in a number of special societies. He was convinced the Royal Horticultural Society has a good future in store, and expected a genuine response in holding a provincial Show at Liverpool. He trusted there would be no real difficulty in finding a new home for the Society; the difficulty was in finding a place for periodical meetings and shows. Yet with a hearty and single-minded purpose to represent the interests of horticulture in this country, difficulties will vanish and a home will be found.

Mr. Veitch proposed the toast of the "Amateurs," and in doing so re-



gretted the absence of several of his brother nurserymen. However, in their names and his own he desired to recognise the valuable support given to horticulture by the many gentlemen who delight in their gardens, and who furnish them in a befitting manner. He desired also to make a suggestion to the Council of the Royal Horticultural Society, and would ask them to not forget the existence of nurserymen and practical gardeners. He thought it would not be inappropriate for both the classes named to be directly represented on the Council, as in past time, when the Society was at least as flourishing as it is now. He had often heard his father say that when any practical matter was under discussion, and the late Prince Consort presided, his Royal Highness always turned to the practical men for an expression of their opinion.

Dr. Allman, in responding, said the pleasure derivable from gardening and the cultivation of plants no one knew who had not experienced it. Every moment added to their delight, and fresh joys were ever arising. It was pleasant to bring plants from other lands and localities and establish them in positions where they can be enjoyed. He wished success to all who were engaged in the delightful pursuit to which they had devoted themselves.

A vote of thanks was cordially proposed to Mr. Lee, the newly appointed Secretary, for his services in regard to the dinner, and in other ways. This gentleman, in briefly responding, said it was their intention to carry out every good practical suggestion, and to place the Society in a position to enjoy the confidence of all horticulturists in the kingdom. The proceedings of a very successful and enjoyable evening then terminated.

## THE PRIMULAS.

(Continued from page 573.)

*P. mollis*, Nutt.—The soft-leaved Bhotan Primrose is included by many botanists under the large section "*Primulastrum*," but we prefer for simplicity M. Stein's plan of classing it in "*Cortusina*, Schott," in company with *P. cortusoides* and its forms and the new *P. Kauffmanniana*, Regel. The latter classification seems the best as far as affinity goes, besides being much more convenient for cultivators. *P. mollis* is one of those Primroses which it is almost hopeless to attempt cultivating in the open air in this country—not so much from the cold, as we believe it is found at fairly high elevations, but from damp, caused by fog, &c. We have tried it in the neighbourhood of London under almost all the conditions conceivable, sometimes with apparent success, but which invariably ended in failure. Even under glasses and overhanging ledges it was found to have decayed. We winter it successfully in a dry cool frame, airing freely on bright days and watering only when very dry, and even then care is required to keep the water from lodging about the woolly crown. We succeed with it best in pots, having given up planting it out, and as it is a quick coarse grower it requires plenty of pot room and plenty of feeding. It makes a charming greenhouse plant when well grown, and it not uncommonly produces from twenty to thirty flower stems, each averaging from four to five whorls of its large bright flowers, presenting with the densely hairy foliage a really magnificent sight. If flowered early in good seasons it produces seed, but it may also be readily propagated by division of the crowns in winter. The foliage all rise from the root, the leaves on long petioles entirely covered with curious spreading hairs, the blade almost round in outline with a cordate base, and lobed and crenated margins, veined or reticulated. The flower stems vary from 12 to 18 inches in height, the flowers being arranged in whorls; the corollas about an inch in diameter, of a bright rose or brick-red colour; the petals deeply lobed; the calyx campanulate, hairy; the teeth short and broad at the base. It flowers from April until the end of July. It was found in the Bhotan Mountains by Mr. Booth about 1852.

*P. MURETIANA*, Moritizi.—A hybrid between *P. subintegrifolia* × *viscosa*, A. Kern. It is closely allied to *P. Dinyana*, which is *superintegrifolia*, and easier to grow than the latter hybrid. It is also more robust in habit, having a larger share of *viscosa*. This plant seems to show more clearly than any we have yet described that hybrids are more vigorous than their parents; and although, as may be seen, it possesses more of *integrifolia* than *viscosa*, yet the plants equal if not surpass the later vigour, raising the lowly *integrifolia* to a striking plant. It requires deep, rich, but light well-drained soil to grow it well, and apparently taking best to a western exposure. We grow it on steep slopes with only a few stones round the base of the stems, they serving the double purpose of keeping the surface roots cool, and just retaining sufficient moisture for the plants. The whole plant seldom reaches more than half a foot in height, the leaves nearly those of *P. viscosa*, with fewer and shorter hairs and more dilated at the base. Flowers large, of a deep rich purple, opening earlier than *integrifolia*. Plentiful on the high Alps. Syn., *P. Mureti*, Rech.

*P. NELSONI*, Hort.—Another Primrose I have not seen, and only mention it in the hope that it may appear from some obscure corner, as M. Stein says he has only seen it once at Innsbruck, whence it was received from London, and according to English cata-

logues it can only be a form of the *P. villosa* group with pale flowers.

*P. NIVALIS*, Pall., is a very distinct plant from the one we generally find in gardens under that name, the latter being only a white variety of the European *P. viscosa*, and may perhaps be a corruption of *nivea* or *niveus*, a name by which the variety is known in the trade. *P. luteola* is another plant sometimes sent out under the above name, and although when out of flower there is some affinity. The flowers are so very different that when seen all doubt is dispersed as to which it is. Six or more years ago *P. nivalis* was in cultivation in our gardens, and the admiration expressed concerning it at that time falls to the lot of few Primroses, and yet at the present time, when so much interest is being raised in their favour, this remarkable plant is hardly to be found. It seems more adapted for general cultivation than any other of our Alpine species, for not only is it extremely variable both in form and colour, but it is perfectly hardy and may be cultivated in an ordinary border with comparatively little trouble. Its variable nature suggests, under cultivation, quite a new race of Primulas, more especially if it be found amenable to the ingenuity of the hybridiser. In the "*Gartenflora*" Dr. Regel gives a very interesting history of this plant, part of which I append. *P. nivalis* proper, not including the two nearly allied forms—*i.e.*, *longifolia* and *turkestanica* varieties, is undoubtedly one of the most beautiful species of the genus. From the high mountains of the Caucasus it is distributed northwards to Altai and the mountains of Transbaicalia, as well as to Eastern Siberia, Kamtschatka, and N.W. America. Southward it is spread all over the mountains of the provinces of Turkestan, as well as the Alps of Afghanistan and Nepal. It was re-introduced by Regel and Tetison from the Alps of Thian-Shan and flowered in the St. Petersburg Botanic Garden. It has in its wild state produced several different forms, by the introduction of which our collection can be considerably augmented. Thus we have dwarf varieties and tall-growing ones, with broader leaves, glabrous forms, and others with a dense coat of white powder either on the under or on both sides of the leaves, on the petioles and also on the calyx; the flowers being either arranged in one whorl or in two or more in robust specimens, the colour ranging from rose to dark violet purple, the corolla tube varying from the same to twice the length of the calyx. As a guide to its cultivation it is found growing with the following plants, and in gardens where they succeed there will be found little difficulty with this noble Primrose. *Potentilla fruticosa*, *Caragana jubata*, and at the base of the large snow fields at 11,000 feet we found *Callianthemum rutifolium* and *Carex atrata*, and even at 11,500 feet traced specimens of *P. nivalis*.

It grows about 18 inches in height, many flowers in a whorl, reddish or rose-coloured in typical plants, but, as before stated, variable. The leaves are distinct, and may be recognised by the margins always being curled or turned inwards, and also in the purplish tinge of the midrib, especially towards the base. It flowers with us from May onwards. The variety *turkestanica* has very deep violet flowers and elliptic lanceolate leaves more deeply crenated at the edges than the type. Syn., *P. nivalis* var. *colorata*. *P. longifolia* has longer and altogether narrower leaves than either, with rosy flowers.

*P. OBOVATA*, Huter.—An interesting hybrid. *P. Balbisii* × *tyrolensis*, A. Kern, I believe to be in cultivation, although I have never seen it alive.

*P. OBRISTII*, Stein; super-*Balbisii* × *Auricula*, Stein.—This is too near *P. Balbisii*, as far as we have yet seen in the young plants, to warrant a detailed account. It is, however, more robust than *P. Balbisii*, and flourishes equally well on the rockery in a rather exposed situation.

*P. OBTUSIFOLIA*, Royle.—Under this name seeds were freely distributed two or three years ago, but afterwards it was found to be a form of *P. involucrata*. It is, however, quite distinct from the latter, and more nearly resembles forms or states of *P. Stuarti*, from which it may be distinguished by the thin texture of the leaves and the round capsule. It is a very variable plant, however, and extreme forms, such as the one with the deeply toothed obovate leaves, appear quite distinct from the one with the spatulate leaves. It grows about a foot in height, the leaves having distinctly winged petioles, and generally covered with yellow meal beneath. Flowers collected in a loose capitate head an inch or more in diameter, of a bright blue purple with a fine yellow eye. Flowers about July. It seems partial to peaty soil in a cool shady situation, and likes plenty of moisture during the growing season. It is perfectly hardy, and no fear need be felt about planting it out. It is found in the East and West Himalayas, Kunawar, Kumaon, and in Sikkim at elevations at 11,000 to 12,000 feet above the sea, also in Bhotan. The varieties *Roylei* and *Griffithi* are both distinct, although no advance on the type as garden plants.—D.



## THE PERCIVAL COLLECTION OF ORCHIDS.

At present it is very difficult to obtain a complete list of those who purchased the principal plants of this collection, as all the officials of the Liverpool Horticultural Company are still kept very busy, as may be expected. Many of the most noteworthy plants were sold for the prices named in the catalogue, as referred to last week on page 86. The principal plants for which there were several would-be buyers were sold during the afternoon of the 3rd inst. Some of the particulars may be interesting.

Amongst *Cœlogynes* two only will be mentioned, and both passed into the hands of Messrs. Sander of St. Albans, for seventeen and eleven guineas respectively. The plant for the first contained about 200 pseudo-bulbs in an 18-inch pan, and was the Chatsworth variety of *C. cristata*. The latter was in a pan 30 inches in diameter, and rising 16 inches in the centre. The catalogue price for these two was ten and eight guineas in the order named. The only particulars obtained of *Lælia anceps* was of a plant of *L. anceps* Percivaliana with thirty-eight pseudo-bulbs and eight flower spikes, which passed into the hands of Mr. B. S. Williams, Victoria and Paradise Nursery, Upper Holloway, London, for forty-seven guineas, being seven guineas more than the reserve price. *Cypripedium insigne* punctatum violaceum with twenty growths was purchased by Messrs. Sander & Co. for twenty guineas. Mr. J. Cypher, Cheltenham, secured smaller plants with half the number of growths for ten guineas. Messrs. Sander & Co. bought *Cypripedium Dominianum* with fifteen growths for ten guineas.

The competition for some of the Cattleyas was considerable. One plant of *C. Mossiæ*, with 120 pseudo-bulbs and eighteen flower sheaths, was purchased for ten guineas by the Right Hon. Joseph Chamberlain, M.P., Birmingham. This was said to be a fine variety, and the catalogue price was three guineas less. Another plant of the same variety, with 170 pseudo-bulbs, has gone into the collection of H. Gaskell, Esq., Woolton Wood, Liverpool, for ten and a half guineas, being more than double the catalogue price. The same gentleman bought two other plants, one with 106 pseudo-bulbs and sixteen flowers, and another with 140 and nineteen flower sheaths, for twelve and a half and ten guineas respectively. Also two other plants of the same variety with sixty pseudo-bulbs and twelve flower sheaths, and the other with forty-nine of the former and the same number of the latter, for eleven and ten guineas in the order named, the catalogue price for each being four guineas. Two plants of *C. Mossiæ* Arnoldiana, one with seventy pseudo-bulbs and ten flower sheaths, and the other with twenty-three of the former and three of the latter, became the property of Sir Trevor Lawrence, Dorking, Surrey, for the sums of thirty-two and sixteen and a half guineas, being twenty and a half guineas more for the two plants than the reserve price. The same gentleman became the owner of three very fine plants of *C. Percivaliana*, one with forty-three pseudo-bulbs and nine flower sheaths, another with twenty-one of the former and three of the latter, and the third with thirty-six and nine respectively, for the sums of twenty-seven, thirteen and a half, and eighty guineas. The flowers of the last plant were figured in the "Orchid Album," vol. 3, plate 144. The catalogue prices for the three plants being, in the order referred to, twenty, ten, and fifty guineas each. Mr. Gaskell purchased another plant of this variety with twenty pseudo-bulbs and two flower sheaths, said to be *A1* by Mr. Percival, for fifteen and a half guineas. Messrs. Sander & Co. became the owner of *C. Percivaliana alba* (Reich) with ten pseudo-bulbs and two flower sheaths for the sum of twenty guineas, also a second with nine bulbs and one flower sheath, for fifteen guineas. A plant of *C. Skinneri*, with 140 pseudo-bulbs and twenty-six flower sheaths, passed into the same hands for thirty-two guineas, as well as *C. oculata* with twenty-eight flower sheaths for forty guineas.

Sir Trevor Lawrence obtained three plants of *C. Mendelii* for 70, 48, and 38 guineas, the first plant having twenty flower sheaths, the second twelve, and the third five. Enoch Harvey, Esq., Riversdale, Aigburth, obtained another with forty-four pseudo-bulbs and five flower sheaths, said to be a very fine variety, for forty-eight guineas. Mr. Gaskell a dark variety for 34 guineas, having sixty pseudo-bulbs and ten flower sheaths. A superior variety of *C. Mendelii aurea* passed into the hands of F. Hunt, Esq., Stamford Hill, London, for 22½ guineas. This plant had twenty-eight pseudo-bulbs. A plant of *C. exoniensis* with two leads passed into the hands of A. Wilson, Esq., Westbrook, Sheffield, for 17½ guineas. The plant of *C. Brymerianum*, with twelve pseudo-bulbs and two leads (figured in the "Orchid Album," vol. iv., plate 184) for the sum of 49 guineas, the catalogue price being 25 guineas. *C. Mossiæ* Hardyana, with ten pseudo-bulbs and two leads (also figured in the "Orchid Album," vol. iii., plate 145), passed, as well as the above plant, into the Woolton Wood collection for 49 guineas. A plant of *C. Sanderiana*, with seventy-five pseudo-bulbs, 38 guineas; also *C. gigas*, in a basket, with thirty-three pseudo-bulbs, went to the same collection for 13 guineas. Another plant of the same variety, with sixteen pseudo-bulbs, was purchased by C. W. Scott, Esq., Woodhank, Dumfries, for 16 guineas, the catalogue price being less than one-half. Two plants of *C. Trianae formosa* were purchased by Mr. Gaskell for 29 and 20 guineas, the first having seven flower sheaths and the latter three. The same gentleman also obtained the plant of *C. T. Normani* for 20 guineas, with three flower sheaths and fifty pseudo-bulbs. Sir T. Lawrence also secured a plant of this variety, slightly smaller, but with double the number of flower sheaths, for 15½ guineas. A plant of *C. Trianae*, with twenty-eight pseudo-bulbs and six flower sheaths, passed into the hands of D. de Yvrandeu, Ullet Road, Liverpool, for 10½ guineas.

*Dendrobium Jamesianum*, with eight new pseudo-bulbs and forty-four old ones has gone to St. Albans for the sum of 13½ guineas. A plant of

*Odontoglossum guttatum*, with six pseudo-bulbs and one lead, said to be a very fine variety, has been added to the Woolton collection for 16 guineas, being more than three times the catalogue price.

Messrs. Sander & Co. obtained a fine plant of *Lælia purpurata alba*, with 113 pseudo-bulbs and fourteen flower sheaths, for 50 guineas; Mr. Gaskell another having nearly the same number of pseudo-bulbs, ten leads and six sheaths for the sum of 40 guineas; Mr. B. S. Williams a third, with fifteen leads and four sheaths, for 10 guineas less than the last named price. The same purchaser also obtained *L. elegans prasiata*, with four leads, for 25 guineas; Mr. Gaskell *L. elegans alba*, with the same number of leads, said to be a grand variety, for 50 guineas. *L. Phalaenopsis Schilleriana*, with nine large leaves and one flower spike was secured by Mr. Gaskell for 16 guineas; also to other plants, with seven and six leaves, for the sums of 10 and 11 guineas respectively. *Vanda Sanderiana*, with two leads and three or four pairs of leaves, was purchased by the same gentleman for 10½ guineas.

Enough has been given to show that the zeal for special varieties has not abated since the importation of these plants in such vast numbers, and their disposal in consequence at comparatively low prices. The prices given for some, as will be seen, considerably exceeded the catalogue prices, in fact about £500 more was realised by those sold by auction. This amount would have been considerably exceeded but for the specifications of sale, which prevented all who had not previously ordered from bidding.—WM. BARDNEY.

## ECONOMY IN THE ARRANGEMENT OF CUT FLOWERS.

GENERALLY speaking, gardeners who have to produce flowers for cutting have some idea of economy in using them. They will take care to grow such flowers as will remain fresh when cut for a fair length of time, and in re-arranging due care will be taken of such flowers as may be found fresh enough to be used again. But from a variety of reasons the gardeners in a great many of the smaller establishments are not called upon to arrange cut flowers. Often—and very properly—the lady of the house has plenty of time, has a taste for, and likes to arrange cut flowers herself. Others, as they find the cares and anxieties of the household and other social duties increase upon them, will give it into the hands of a "lady-help," or a handy lady's maid, with the good intention of saving the time of the gardener. The gardener has generally enough to occupy his attention and will seldom grumble at this arrangement, if those who are entrusted with it are reasonable in their demands and show some regard to economy in their style of arrangements when flowers are not very plentiful. Unfortunately this is not always the case. Sometimes the demands are insatiable, and as soon as a few flowers begin to fall or look faded they are bundled out, fresh and faded together. During summer, when flowers are plentiful and do not last so long fresh in a cut state, this is perhaps the best thing to do; but during the dull months of winter many gardeners have not the means of forcing large quantities of flowers, and for such to witness the waste of flowers practised by those who arrange them is grieving in the extreme.

Another thing gardeners have often to complain of is the enormous quantity of flowers some of these amateur decorators will cram into a very small space. They take an epergne or vase just as it is, with a little water in it, and though they find it difficult to get the flowers to stand in the position they would like, yet they have not the ingenuity to perceive or are too indifferent to take such steps as would facilitate their task. They simply go on sticking in more flowers so that the one supports the other, the general result being a crowded mass instead of a light and elegant arrangement. It would be well for ladies who do not personally see to the arrangement of cut flowers to leave it in the hands of their gardener, who will generally contrive to find time, and will be more satisfied with the result of his labour.

I have now jotted down a few hints which may be useful to some of your readers who may not have had much experience in this matter; and let us hope that as they improve in the matter of economy they may in the same degree advance in taste and style of arrangement. Epergnes are rather difficult to deal with, chiefly on account of the extremely shallow vessels. A good plan is to fill them up with fine sand and cover it over with soft green moss, such as is to be found growing on stumps of trees or moist rocks, and the whole saturated with water; or the sand may be covered with *Selaginella denticulata*, which with care will remain fresh for a considerable time and form a pleasant ground for the flowers. For the base of the epergne nothing is better as a border than the common Maidenhair (*Adiantum cuneatum*). Get good large fronds and arrange them so that the broader part of the fronds rest on the top of the moss all round the outside, only little more than half of it overhanging the edge. In arranging the flowers use such as are cut with very little wood, or none at all—as in the case of *Camellias*—round the outside, so that they may rest on the damp moss. All flowers of a formal character should be first arranged thinly, and then sprays of lighter flowers placed between them in a free and easy manner. Avoid crowding and place nothing in an unnatural position. For instance, it is quite right that we set a truss of a Zonal *Pelargonium* in a prim upright position, but it would be an outrage on Nature to do the same with *Lapagerias*, *Passion Flowers*, or anything that is of a pendant habit. These are seen to better advantage hanging from the upper tiers of the epergne. For a border for these latter something of a creeping or scandent habit is more suitable than Fern fronds. *Selaginella uncinata* and *Lygodium scandens* are two useful plants for this purpose.

To facilitate the filling of large china bowls (sometimes used) or



baskets, a piece of small-mesh wire net should be cut so that it will rest on the surface of the water or a little under it. On this place a layer of moss, which will not only keep the flowers in position, but the moisture rises in the moss as it would in a sponge, and keep the stems and foliage in contact with it fresher than they would be by simply having water in it. The same plan should be adopted with wide-topped vases.

Amateurs who are not skilled in the art of bouquet-making will find a light wire frame, such as that represented in the annexed sketch, useful.

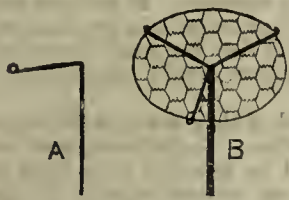


Fig. 20.

Maidenhair Fern all round, putting them through the moss half-way between the centre and circumference, and use a little damp moss in tying the stems together. The flowers may then be put in—the larger ones first—thinly, and smaller sprays and Fern between. The advantage of such a frame to the inexperienced is that tying each flower as it is put in is not necessary, and that it can be stuck into the neck of a bottle or other receptacle, as occasion may require, without displacing any that are not secured.—R. INGLIS.

### SEASONABLE HINTS ON FLORISTS' FLOWERS.

AFTER an experience of winter very unlike that of the last two years it will be perhaps not unreasonable to hope that we have seen the worst of it; for although we do frequently get much cold in February, yet the "days lengthen and the sun strengthens," and we are not so likely to have that damp cold which is most injurious to plants both under protection and out of doors; that which causes softwooded plants to "fog off" in houses and frames, and many of the alpine plants in rockeries to damp off and decay, for they have not that warm covering of snow which keeps them fresh and lively under its protecting mantle. It has been curious to notice when there has been a good fall of snow how, when it has passed away, the Aconites, Hepaticas, Cyclamens, &c., have been progressing under it. But even if we have not seen the bad weather, there must now be activity amongst the growers of florists' flowers. Operations must not longer be deferred, or the hopes of a year may be destroyed.

*Auriculas*.—There is no period of the year at which these look so poor as now. The fine foliage which they had in summer has gone; week after week outer leaves have withered and been removed, leaving, when the plants are healthy, a small solid heart from which the future plant is to be developed. Anyone unacquainted with them would pronounce them now to be miserable weeds. Not so the expert. Give him but a good solid plant, and he knows that in time he will have a luxuriant and flourishing one to show you. A severe winter, provided the frames be well covered, is not injurious to them—rather the reverse. It keeps them back, and does not stimulate them into premature growth and too early flowering. As I have of late said, my observations are not intended for exhibitors, but for those who grow for love's sake, and, therefore, I do not advocate the necessity of keeping back such varieties as Taylor's Glory, Acme, or most of the selfs, which come too early; or forwarding Richard Headley or Hero, which are generally laggards. The grower who is not influenced by the dates of shows will have some enjoyment of his plants. I again last year dispensed with top-dressing, and think my plants were just as well without it, owing to watering, stirring the soil, &c. During some months the soil in the pots gets wasted, and it will be necessary to fill them up when this is the case, using a simple compost of three-parts loam and one part of decayed cow dung. The surface should be well stirred, all signs of decaying leaves removed, and then if necessary fresh compost added. This is very different from the process of top-dressing, which used to be considered absolutely needful, and which was one of the events of the Auricula-grower's year. Great care is also necessary, as the weather becomes less cold, to look out for the green fly, which should be carefully brushed off, or if it be too troublesome the frames or pit may be fumigated with tobacco.

*Carnations and Picotees*.—Those in beds have had rather a rough time of it this year, but with the exception of a few of the yellow ground Picotees mine seem to have weathered it well. The beds will now require examining, and if the plants have been loosened by frost they should be pressed down into the soil. Those in pots have kept singularly clear of spot, and it will soon be time now to prepare for placing them in the blooming pots. Pots should be cleaned, compost turned over and made ready for use, and everything got into a state of forwardness, for a time will soon come when out-of-door work will press heavily on gardeners, and everything of preparation that can be got through should be completed.

*Pansies*.—Transfer these to their largest pots. It is a moot question whether they should be placed in large size 32's or 40's. The former gives more room; but perhaps it will be found that by using smaller pots there is less danger of rotting the roots, while stimulants can be added afterwards. Every year sees the old Show varieties as they were called being elbowed out of the way by the more varied and robust-growing Fancies. The compost to be used must be simple and sweet; that used for Auriculas, with addition of a little leaf mould, will do very well—say three parts loam, one rotted manure, and one leaf mould, with a little coarse sand or road grit to keep it open.

*Ranunculus*.—These ought to be planted very soon. The 12th of February is the day that has been always regarded as the best time for the operation, but of course that depends very much on the state of the ground. At present it is so completely saturated with the heavy rainfall and sun of January that it will be very unlikely that it will be in a fit state for the operation at the orthodox time; still, if a dry time set in we must be prepared for it. See that there are sufficient roots for the heads required, and if not, the sooner the vacancies are filled up the better.

*Gladioli*.—The only thing that can be done with these now is to look through them and see that they are not emitting roots. When they are it is better to pot them into small pots at once without injuring the roots, and to plant from these into beds. It is only, however, where they are placed in bags that this is likely to occur. Where they are laid out on shelves or trays this does not happen. Where it is needful to add to the collection no time is to be lost.—D., Deal.

**WEST AUSTRALIAN TIMBER.**—Western Australia is very rich in good timber, which is now being largely developed. The forests of Western Australia cover an area as large as Great Britain. There are more than 30,000 square miles covered with Eucalyptus, 24,000 miles of which consist of the White Gum (*E. viminalis*) and Jarrah (*E. marginata*). The latter is a most important shipbuilding wood from its imperishable nature and immunity of attack from insects. The Tooart (*E. gomphoccephala*) and Red Gum (*E. calophylla*) are also excellent woods.



### HARDY FRUIT GARDEN.

**PEACHES AND NECTARINES.**—Let the pruning and training of Peaches, Nectarines, and Apricots be done now, so as to have all finished before there is any risk of damage to swelling buds. Apricots answer well under spur-pruning with the branches presenting the appearance of parallel cordons. Avoid spur-pruning for Peaches and Nectarines, stout main branches trained fan-fashion well furnished with lateral fruiting wood of last year's growth, robust and sturdy, as stout as an ordinary cedar pencil, of ruddy brown hue and firm texture, and well set with triple buds. With plenty of such wood we may confidently anticipate a crop of really fine fruit this year, only take good care not to retain too many laterals. Better, far better, is it to tie in fruiting wood thinly than to have it crowded, and subsequently to have much thinning of fruit. If the fruiting wood has a slender attenuated appearance with only single blossom buds the fruit will be small and the wood growth weak. For our part we never retain such wood except in cases of necessity when fruit must be had; but knowing that slender weakly growth is a sure indication of debility, of hardened tissue, of sluggish sap action, we invariably behead the tree, cutting off all the branches to within 2 or 3 feet of the base. The old soil is removed down to the roots and replaced with sound rich loam; a subsequent growth of remarkable vigour usually follows, so that in two or three seasons the whole of the wall space is again covered, and the tree is in full vigour and fruitfulness once more. A gardener requires considerable experience, sound judgment, and some courage ere he can venture upon such bold measures with trees entrusted to his care. It is to strengthen his hands that we write this note, as well as to assure the owner of the trees that they will not be spoiled.

Newly planted trees should always be headed back at the time of planting, our object before all things being to have the trees fully developed and well furnished with fruiting wood as soon as possible. Planted in carefully made well-drained stations of rich loam with the branches all shortened to about 18 inches or 2 feet from the base, the trees start freely and strongly into growth in spring, and if only we can contrive to screen the young foliage from cold cutting north-east winds, and keep the soil about the roots moist, they will sustain no check. Have no fear that the growth will be too robust. We have often had young fan-trained trees cover the greater part of the wall space allotted them in two years; and although the main branches have developed so much wood growth as to be barren of fruit buds, yet they have plenty of stout fruiting laterals. Let it be clearly understood that in the second year it is possible to have a branch growth full 6 feet long with plenty of laterals well set with triple buds, from which a crop of fine fruit may be had in the third year.

### FRUIT FORCING.

**CHERRY HOUSE.**—The temperature having been maintained at 40° to 45°, and about 50° in the daytime regularly, the trees are now rapidly unfolding their buds, and before long the blossom will have a beautiful appearance. Before the flowers expand it will be well to fumigate the house so as to make sure that the trees are free from insects, or an application of clear rather strong quassia water will answer the same purpose, repeating at intervals of a day or two. Any alterations in the way of introducing fresh trees must be completed without delay, and taking precautionary measures, so that shading may be applied to such trees whenever sunshine is powerful; and in order to promote the re-establishment of such trees as quickly as possible they should be lightly sprinkled more frequently, and other surrounding surfaces moistened.



**VINES.**—*Early Vines in Pots.*—When the bunches have been properly thinned the laterals behind them will require moderately close stopping, whilst those beyond or in advance of the fruit may be allowed more freedom provided there is space for their development and being tied down to the trellis. Guard against overcropping, quality being always of more importance than quantity, removing surplus bunches. Top-dress the soil with rich compost and decayed manure, to receive which have rims of zinc or lead 4 inches deep fitting within the rim of the pots, and to insure the passage of water through the pots. If the pots are standing on solid brick pedestals and fermenting materials are placed loosely round the pots, liberal supplies of stimulating liquid may be more frequently given than when they are tightly plunged to the rim, and in all cases where the pots are to remain undisturbed until the Grapes are ripe the roots may be allowed to follow the liquid through the loose brick pedestals and the plunging material, when the fruit will be fine in proportion to the number of feeders that extend beyond the pots.

*Earliest Vines.*—Give close attention to stopping, tying, and thinning, and observe great determination in the removal of surplus bunches before they have time to rob the Vines; a judicious reduction in the number of bunches does not always mean a corresponding reduction in weight when the Grapes are ripe. Allow as much extension above the bunches as the space at command warrants, but only until the space is fairly covered with foliage, then keep the growth closely pinched. Afford liquid manure in a weak and tepid state to the inside borders, and mulch with short manure fresh from the stables to give off ammonia. Close the house early with plenty of atmospheric moisture.

*Early Muscats.*—Where there is a house devoted to these, and assuming it was closed about the middle of December, the bunches are now approaching the flowering stage, and will require a night temperature of 65° to 70°, with a rise of 10° to 15° by day, and the house may be closed at 80° to 85° when bright weather prevails. When they commence flowering it will be necessary to fertilise every bunch with their own or Black Hamburgh pollen, and the Muscats so treated usually set well. Early Muscats are much prized, and to have them ripe early or by June they require to be started at the time indicated, as to do them well they require some time in ripening, the wood being thoroughly ripened and the roots having the benefit of a warm inside border, which has been well mulched and the Vines well fed through the previous growing season for the purpose of keeping the roots near the surface instead of driving them down in quest of moisture and nutrition.

*Succession Houses.*—Attend to disbudding and tying. Tie down the young shoots before they touch the glass, and allow the first to extend when it is thought desirable to cover vacant space with foliage. Remove all surplus bunches before they flower, and maintain a moderate moisture even afterwards by damping occasionally, keeping a rather warm atmosphere, but with a gentle circulation of air constantly. If there is any lack of moisture in the borders give a thorough supply before the flowers open.

*Late Houses.*—Assuming that the Vines were cleared of the Grapes early in January, and that the inside borders have been top-dressed with fresh loam and crushed bones, a good supply of tepid water should be given, and a start made without much further delay, as it is essential to the Grapes keeping well that they be ripened thoroughly by the middle of September. Keep the strong rods in a horizontal position, and insure an even break by syringing three times a day. Keep the temperature at 55° by night, rising 5° to 10° by day, and an advance of 5° or more from sun heat.

**PINES.**—*Fermenting Beds.*—Where these are employed as a means of giving heat to the roots of Pines, it is a usual practice to remake them just prior to the approach of winter, and to incorporate the materials employed in such manner as to make the heat generated by them as steady and durable as possible. Under ordinary circumstances these beds will now require similar attention, and should be renewed by fresh material as soon as circumstances permit. This kind of work is generally put off to unfavourable weather for other work, and in this there is nothing wrong provided the work is done at the right time in the proper manner. Opportunities that occur for this kind of work should be taken advantage of, at least it must be attended to, as at the end of this or the beginning of next month some suckers should be started, and the requisite attention given to such plants as require it, as repotting or otherwise shifting into larger pots such as require it, giving timely attention to the preparation of the soil, and other requisites of potting, so as to have all ready when the time arrives. The loam, especially when of a tenacious nature, should be had under cover to become dried.

*Fruiting Plants.*—Strive to insure an invigorating condition to these, giving every attention to the moisture that is needed, and taking every advantage of gleams of sunshine to raise the temperature to 90° or 95°, closing early in the day.

#### PLANT HOUSES.

*Marantas.*—Repot these plants at once, so as to give them a chance of becoming established before the sun has too much power. They delight in having sweet soil about their roots; and in order to accomplish this, the old soil, or the greater portion of it, must be removed annually, or it is certain to become sour and saturated from the enormous supplies of water the plants require when growing. Turn them out of their pots and work the old soil carefully from amongst the roots, and then place them in clean liberally drained pots. Some care must be taken to dispose the roots as evenly as possible amongst the soil instead of crowding them carelessly. The soil must consist of fibry loam and peat in equal proportions, with lumps of charcoal and a liberal dash of coarse sand freely

intermixed. We have used about one-seventh of decayed manure in the compost advantageously, but prefer feeding the plants after they have filled their pots with roots, for the manure only assists in rendering the soil close and sour more quickly than would otherwise be the case. After potting, plunge the plants in brisk bottom heat until they have commenced rooting and growing freely. The soil used for potting must be warm, and in an intermediate state for moisture, so that water at their roots can be withheld for as long a period as possible. This can be done when the plants are plunged and liberally syringed. If the sun strikes upon them after they have been repotted they are certain to flag, which must not be permitted, for if allowed to flag they are much longer before they become established in the new soil than would otherwise be the case.

*Alocasias.*—These should also be potted, if they are to be in the very best condition, for as long a period as possible. To do these plants really well the whole of the old compost should be removed from their roots annually, for the very best material in one season becomes too much decomposed. Where the root portion of the stem of these plants is too long to allow of them being lowered in the pots in which they are to be placed, a good portion may be removed without injury to the plants. As growth extends they root freely from the collar and upper portion of the stem, and if placed sufficiently low in their pots at the commencement they can be top-dressed with rich material during the growing season.

Alocasias do well in a compost of fibry peat and sphagnum moss in nearly equal proportions, with large lumps of charcoal freely intermixed. The former should predominate, and a good layer of the moss should be placed over the surface after potting has been completed. The pots or pans should be about one-third filled with drainage, and the centre of the plants well elevated above the rim. The material advised for potting should be pressed as firmly as possible into pots as the work proceeds—that is, if the crowns are separated. In many instances this need not be done, as the old material can be washed from amongst the roots without separating the crowns. If possible plunge them in bottom heat to give them a start, and keep them in a close moist atmosphere. The root portions of the stem, if young plants are needed, may be cut up into lengths and laid amongst sandy soil in pans, and placed into the propagating box until they break into growth, when they can be potted singly, or a number placed together in each pot.

*Anthuriums.*—Fine-foliage varieties, such as *A. crystallinum*, *A. splendendum*, *A. Warocqueanum*, and others are most effective plants in the stove when well grown. To keep these in the best of condition they should be repotted annually, and their stems lowered into the pots if they need it. They should not be left unpotted for more than two seasons, for in that time the soil becomes very rotten about the roots, a state of things which should not be allowed to exist. If sphagnum moss is used with the peat, potting should be done annually; if peat fibre with charcoal freely intermixed is used they will do for two years. We use sphagnum moss, peat and charcoal, and repot the plants every year. It is not necessary to give larger pots; on the contrary, if the plants have attained a fair size the same pots may be used for several years in succession. When the plants are turned out as much of the old compost is removed from the roots as possible, and the remainder washed out. The pots are drained, the plants potted and treated afterwards the same as advised for Alocasias. The lower portion of the stem is also removed in the same manner if needed.

Such Anthuriums as *A. ornatum*, very fragrant, *A. Andreanum*, *A. ferriense*, and others are subjected to the same treatment as regards potting at this season of the year. The second named soon grows away from its pots and becomes unsightly if not headed down. This may be successfully accomplished if a good bunch of moss is placed round the stem of the plant just below its main leaves, for in a short time roots will take possession of it, when the head may be severed from the stem and potted separately. The old stem will break freely into growth, which, when large enough, may be taken off and potted singly. These will make good plants in the space of one year. *A. Schertzerianum* should be kept at rest for a few weeks longer in a temperature of 50° to 55°. While in this temperature keep the soil moderately dry.

## THE BEE-KEEPER.

### SUPERING.

THE knowledge of how and when to apply supers is so important to all bee-keepers that it is impossible to dilate too fully upon the means now adopted in this country and America for obtaining the pure white comb honey, which, either in neat sections or other ornamental supers of all sizes, are so commonly seen in shops in our large towns. There has always seemed to be some mystery about this art of supering—for art it most undoubtedly is—which is even now not nearly as generally known as we would expect from the numerous books and leaflets so largely distributed in most of our English counties. That most bee-keepers can obtain some super honey is indisputable, but few are so successful



as to obtain the amount from each stock which may rightly be expected. Either a swarm is thrown and thus the supers emptied, or the queen enters and appropriates to her use for egg laying some of the cells, and so spoils the beauty of the comb and the value of the super as a whole.

It is perhaps useless to attempt to say which kind of super is the one which is most suitable; each one must judge for himself, and as he finds the glass, the divisional, the Stewarton, or the section most readily saleable must adopt that form in all cases when he desires to dispose of his produce. Most probably, however, the 1 lb. section is the most popular super; the size is convenient, neither too large nor yet too small, and the cost of the section itself is nominal.

The hive is to some extent an important factor in obtaining a good yield of super honey; but I am not disposed to lay too great a stress upon any particular form of hive, nor yet to say that either straw, or Stewarton, or bar-frame will in the hands of a competent man far exceed one another in their yield of super honey. All hives, however, should be deep enough to allow some sealed honey to intervene between the brood nest of the hive and comb of the super; the chance of the queen going up into the latter will thus be much smaller than if the brood nest extended to the top of the hive, so that the queen would at times be so near that if cells were prepared and empty, eggs might be laid and the super ruined. It is, however, not of the hive but of the art of supering of which I desire now to write.

In order to obtain supers the stock must be strong in bees and contain a good fertile queen. Now every stock ought to be ready for supering as soon as there is honey in sufficient quantity to fill the supers; every day lost then is a day wasted and profit gone. In most seasons honey may in favourable districts be gathered in quantity from the end of April, and at that time stocks, if properly managed, will be ready for extension. The precise time to place supers must be ascertained by experience; but if the bees are covering all the combs, or if there seems to be a great overcrowding at the entrance, more room is required. Now it is essential to remember that if a super is not placed when required—even a day may make a serious difference—preparations will be made for swarming, and if these preparations are once made it is almost impossible, and it is certainly not wise, to try and prevent the issue of a swarm. How, then, is this difficulty of neither putting on the supers too soon nor delaying too long to be overcome? A beginner may venture to try whether the bees are ready without doing mischief if he will take care not to allow too great an escape of heat from the hive.

If a stock is supposed to be ready for a super let a super be placed on it and warmly covered up about ten o'clock on a fine warm sunny day; if the bees are ready for it they will soon take possession, and all is safe. If, however, in a few hours' time no work has been commenced and no bees are seen in the super the stock may be judged to be unprepared, and a few days may be allowed to elapse, when a second trial must be made; but if the super is not taken possession of in a few hours it should be removed, because any vacant space over the brood nest must of necessity cause the loss of heat and so throw the stock back, thereby causing loss of time. Supers must be wrapped up very warmly; but here again discretion is necessary. After the first glass or box is being worked, if no increase is desired, a second super must be placed under or above the first, when the latter is crowded with bees and comb-building is going on extensively, and so super must be added to super until the close of the season, when no more must be given, but the energy of the bees be the rather directed to the finishing of those already partially filled. Each super, as the comb is filled, must be removed, and so fresh room being given, ventilation being by this means afforded, the desire to increase is prevented, unless owing to the death or disablement of the queen, and super honey in abundance is gained. If sections are used they must be worked in a crate, and if this crate of sections is treated as

one super, and each box is removed as finished, no loss will result, but rather a gain, for each removal of filled sections must, if the piling system is adopted, cause great annoyance to the bees, and loss of time when every hour is precious.

There has been no little discussion as to whether in piling the empty super should be placed above or below the partially filled one. If, however, it is placed below, the first-placed one will generally be first completed, while if the empty one is placed on the top the completion of the first-named one may be delayed to some extent. In hives, however, where there is no breadth of sealed honey between the brood nest and the supers I would allow the first-placed super to remain at the bottom, so acting as a zinc excluder, only much more advantageously, until completed, when it may be removed. It is possible that some of the inner sections may be discoloured, but the beauty of those above will compensate. If, again, this desired breadth of honey is given in the stock I would place the empty super beneath the partially filled one, thus keeping the first-placed one always at the top, until ready for removal.

It is necessary at times to have supers able to contain over 100 lbs. of honey on a stock at once, so heavily do the bees work, and so quickly does comb-building go on at the height of the season. The honey gathered has to lie for a period to evaporate its moisture and ripen before it can be sealed, so that the bees, if stinted of room and finding no employment in the direction of comb-building to engage their attention, turn their thoughts to swarming when their combs are sealed or filled with honey not yet ripe enough for covering. True, bees will swarm at times in the hands of the most careful bee-keeper, but if they do it can generally be traced to some little act of negligence or the presence of a poor queen, either disabled by accident or partially so by age. Sufficient room in advance of the wants of the bees must be given if fine super honey in quantity is desired. Supers must be warmly wrapped up and never interfered with, unless absolutely necessary in order to remove them or to alter something wrong. If not taken possession of they must be removed. Heat must be conserved, stocks kept strong in bees, rich in stores, in roomy hives, well made and admitting of piling. These points being attended to success is assured, and an abundant crop of comb honey, which at present realises the highest prices, will reward the bee-master for his care and judgment.—FELIX.

#### THE PAST HONEY SEASON—THE DARK SIDE OF BEE-KEEPING.

So much has been written in favour of bee-keeping, and such reports of honey and profit (?) obtained, that I am induced to give my experience for the past season as a kind of antidote to some of the assertions made by "A Surreyshire Bee-keeper" and others, that every cottager who can ought to keep bees.

The spring opened cold and dull, feeding light stocks being general till May 26th, when the first honey was gathered here, but barely sufficient to maintain brood-rearing until the Sycamores were all over near my home apiary. Just then a ten-days hot spell came, when bees three or four miles away on the hills, almost on a level with the Heather, and where everything blooms two weeks later, had a fine time of it, first swarms yielding 20 lbs. of surplus honey. This hot weather hurried all up in the valleys; then came a dull time, with a few heavy showers, until haytime. As soon as the weather came fine again the mowing machines were brought out, and in three days' time all the White Clover bloom was cut and drying for hay near home; while on the hills, again, the bees had two weeks' good work before any was cut, when every hive got from 20 to 30 lbs. heavier.

We had no more honey after the middle of July, though we always expect some till the middle of August, no sun, every day being either windy, wet, or cloudy until October. On August 12th I took twenty-seven stocks to the Heather, all very strong, one a 16 lb. lot of driven black bees hived on eight empty combs, with a lot of supers above gathered sufficient to carry them through the winter till April. They worked some of the foundation out in each section (36 lbs.), this lot with



no brood did the best of any; another lot, 12 lbs., did not get 8 lbs. of honey, while a lot of hybrids, with fourteen frames of brood (14 inches and 10 $\frac{3}{4}$  inches), and on twenty-three frames, had no honey when I brought them home, and not a tenth of the bees. I could pick chilled bees up by handfuls from the Heather, having been tempted out by its smell and chilled by the cold winds. I brought all home at the end of September, and as they had neither brood nor honey, I knew from past experience that many of the queens would be encased by strange bees getting into wrong hives, which proved to be the case, as within a week I lost about half of my queens. I got seventeen lots of driven bees and doubled the weak ones, and out of the twenty-seven stocks of August 12th, and the seventeen stocks of driven bees, I made up eighteen stocks for winter, three of which were not good; only one is on natural stores, six are on candy, and the rest sugar syrup.

Thus it will be seen my experience in trying to secure the Heather harvest is an utter failure, as complete as possibly can be, and yet I believe I got more Heather honey than any other bee-keeper in this district. I obtained about 5 lbs. of honey per stock from my home apiary, while on the hills, where all the bloom was two weeks later, the average was over 50 lbs.

So much has been written and said by the squires and parsons about benefiting cottagers by bee-keeping, that I am constrained to just put things together a little. Now, suppose I had been a cottager, and after being at the expense and trouble of taking my bees to the Heather, paying the rent there (1s. per hive is the usual charge), and instead of getting £30 profit, which I expected, having to find £3 for sugar, or lose the lot. How many cottagers, pray, could do it? My observations and knowledge of modern bee-keepers lead me to class them as gamblers, always expecting better luck, and every good haul being a bait to get further in the mire. It will be a sorry day for this country when bee-keeping is taught to every village boy as "A. S. B. K." wishes.

Cottage bee-keeping was perfected ages ago, hundreds of years before the *British Bee Journal* was published. Is there a modern frame hive which displays such profound thought to conceive it as the despised skep? or to compare with it in cheapness? And how simple the management!—viz., hiving swarms and brimstoning those not wanted for stocks. No slow feeding brood spreading, manipulating, removing old queens, or the thousand odd jobs necessary in a modern apiary; all using up valuable time, never to be debited against the profits. Oh, no! the bees work for nothing and keep themselves. These are they who make all the large profits, and goes red hot to drive his poor barbarian neighbour's bees to save them from a cruel death, but for all his talk cannot persuade him to alter his ways and never will.

I have nothing to say against modern bee-keeping as a hobby. This is all it is fit for at present, probably in a while it may be made to pay when plenty of capital can be employed with a good reserve fund against bad times, also a reliable table established of the average losses from various causes and average yields of honey one year with another, and above all something definite about the laws that cause a good season to follow a disastrous one. Then we may have bee-keeping followed as a business and honey selling at 6d. per lb. In fact, let modern bee-keeping be scientific in fact as well as name.—A HALLAMSHIRE BEE-KEEPER.

#### TRADE CATALOGUE RECEIVED.

Vilmorin, Andrieux, & Cie, 4, Quai de la Mégisserie, Paris.—*General Catalogue of Seeds for the Spring, 1886.*



## TO CORRESPONDENTS

\* \* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relat-

ing to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Erratum.**—In the notes on "A useful manure," p. 84, last issue, reference to the soil for Primulas, should read "one barrowload of night soil, three of loam," &c. By a printer's error light soil was substituted for the above.

**Books on Moths (A Subscriber).**—There is really no good and comprehensive book upon our British moths. The best extant is Newman's "Moths" (Bogue) reduced to 16s. we think, but this does not take the smaller species. Stainton's "Manual of Butterflies and Moths" (Van Voorst) about 7s., has all, but this may be out of print. Morris's "Natural History of British Moths" in four vols. is costly (£4 4s.), and you would perhaps not think it worth the price.

**Bulbous Plant (F. G.).**—We do not know the plant by the name you give, and we cannot recognise it by the description that the bulb is "18 inches in circumference." You also do not state whence it was obtained.

**Gooseberry Branches Dying (Somerset).**—We have received the box, the contents of which shall be examined and an answer given in an early issue.

**Back Numbers (J. S. U.).**—It is quite impossible for us to say whether there are purchasers for the particular numbers you have or not, and consequently whether it would be of any use to advertise them. Why not bind them? They would be valuable to you for reference.

**Scale on Conifer (T. S.).**—Your specimen, which appears to be *Thnrips borealis*, is infested with scale. Syringe it well with a solution of soft soap, 2ozs. of soap to each gallon of water, adding to that quantity a small wineglassful of petroleum, agitating violently and keeping briskly stirred all the time the syringing is being done. Do not apply it at a time when the sun will shine on the tree while it is wet with the solution, or the dressing may be injurious; otherwise it is quite safe and effectual in destroying all the scale it reaches.

**Heat of Mushroom Bed (G. H.).**—If the temperature on the soil under the covering can be kept about 50° it will be quite right, a few degrees above or below not being material. As it has fallen to 46° double the thickness of covering. Many beds are now covered to a depth of 2 feet or more with litter, the state of the weather and the condition of the beds alone guiding in this matter. We do not apprehend failure in your case if you act as suggested.

**Primula (G. A.).**—While we are not prepared to say that your Primula is distinct from all others, it is deeper in the purple than most, also very good in form and substance and worthy of preservation. There is, as you know, a slight variability in the colour of Primulas, even on the same truss, and an individual flower is not sufficient for the purpose of forming a definite and decided opinion as to its absolute distinctness and superiority over other varieties closely resembling it.

**Abnormal Primula (H. J. Stokes).**—This flower represents a freak of Nature, the calyx being transformed into a leaf after the manner of the Jack-in-the-Green in hardy Primroses. We have seen many similar examples, but not often with the peculiarity so fully developed. It appears to be to some extent hereditary, but we cannot regard it as a "new strain," nor "good for exhibition." A double Primula of the same character would be suitable for coat decoration, but single flowers soon wither.

**Peaches under Glass (B. R.).**—We have no work on the cultivation of the Peach under glass, and you will not find any better information on the subject of your inquiry than is contained in a year's numbers of the Journal, under the heading of "Work for the Week."

**Custard Apple (Journeyman).**—The Custard Apples are produced by species of *Anona*. The common Custard Apple is *A. reticulata*; the Sour Sop is *A. muricata*, and the Sweet Sop is *A. squamosa*. They are all natives of tropical regions, either the East or West Indies, and therefore require a stove temperature when cultivated in this country. Give the plants a light compost of two parts loam to one of leaf soil, and encourage growth as much as possible, afterwards well ripening this by exposure to the sun. It will, however, take several years for the plants to reach flowering size, and even then it is doubtful if you will succeed in setting the fruits.

**Mushroom Failing (Discouraged).**—The firm you mention are not growers of Mushrooms, but vendors of very good spawn. The process described in the work you mention is founded on successful experience, and is perfectly correct. Some manure will not grow Mushrooms, especially where horses that produce it are systematically under treatment with medicine. Some persons also fail with the best of manure, while others succeed. It is the same in most other pursuits. We have a letter before us in which the writer says he has "just gathered a peck of Mushrooms from one end of an outdoor bed." He carries out the method advised. Cover the bed very thickly with litter, and on the return of milder weather it may probably become warm enough for spawning. It is of no use inserting spawn at present. Beginners should always take care to commence at the most favourable time, and this you have perhaps overlooked. Either the manure is faulty or you have erred in management, for it is certain the instructions are sound.

**Notice to Leave (A.).**—In the absence of any written agreement to the contrary the term of notice to leave is usually determined by the periodical payment of wages. If you are only paid half-yearly you are not, in our opinion, paid often enough. If you give your master a written notice the day before your wages are due that you intend leaving on the expiration of the next term he is bound to accept it, or at least you can leave when the time comes if you can adduce satisfactory evidence that the notice was placed in his hands. If you want to leave on shorter notice you had better act on the advice of a solicitor.

**Vines Unsatisfactory (One in Trouble).**—The Vines are probably weak and the wood not matured, and hence the buds not prominent and well supported. You have also commenced forcing too early, considering that the



roots of the Vines are in a cold outside border. You have, in fact, attempted what is practically impossible under the circumstances, and considering the state of the Vines. All you can do now is to encourage them to make good foliage, and wood to be well matured for another year; then if you must commence forcing so early cover the border with fermenting materials. You might do so now with advantage to the growth.

**Propagating Ficus elastica (H. H.).**—If the side shoots that are a foot long are getting a little firm at the base they will strike if firmly inserted in small pots of very sandy soil surfaced with pure sand kept moist, and the pots plunged in a bottom heat of 80° to 85°, in a case or under a handlight, to arrest the evaporation of the moisture from the leaves. Perhaps the best plants are raised from eyes or portions of ripened wood containing them, inserted much the same as Vine eyes, but each with a leaf attached, coiled round and supported by a stake, and kept fresh till roots are emitted and fresh growth starts from its base. The process is described by "J. H. E." on page 94 last week.

**Improving Lawn Tennis Ground (F. A.).**—Give a surface dressing of rich compost, such as thoroughly decayed leaf soil or the refuse from the garden, and all the better if charred or thoroughly decayed manure, early in April. Rake it in well, and with an early prospect of rain sow 12 lbs. finest lawn mixture, which may be obtained of any respectable seedsman, you stating what you require it for, and asking to have Clovers omitted, as these keep the ground too long damp in the morning. If you choose to sow your own mixture procure 8 lbs. *Cynosurus cristatus*, 2 lbs. *Festuca duriuscula*, 1 lb. *Festuca tenuifolia*, and 1 lb. *Poa nemoralis sempervirens*. Rake lightly after sowing, and roll the surface, not mowing the grass for a fortnight, and then keep the lawn well rolled.

**Vine Shoots Eaten (F. G.).**—The examples sent look very much as if they had been attacked by the Vine beetle. You had better make a careful search with the aid of a lamp or candle at night, and you may possibly find the enemy. The beetles are not, however, very easily seen, and a very careful examination of every point of the Vine should be made. You had better perhaps tie some cotton wool round the stems and smear it with petroleum.

**Mushrooms not Growing (Grower).**—There is nothing wrong with the beds, the Mushrooms do not grow simply because the temperature is too low, the weather lately having been severe. A thicker covering would not have done any harm, but have made the temperature more suitable for and accelerated the growth of the Mushrooms. With warmer weather you will no doubt have an abundant crop, as the beds seem in capital condition. The instructions in "Mushrooms for the Million" are sound, but all those for outdoors and in cool places are contingent of the weather, as a temperature of 50° is essential for the development of Mushrooms, and that can hardly be secured even with a good thickness of covering material in an out-house this winter. We have had many beds similarly located that with a thicker covering or 6 inches have given Mushrooms even in frosty weather, and with milder weather an abundance, the covering then being reduced to a couple of inches, so as to insure uniformity of moisture and temperature. As the weather becomes warmer give tepid water if the soil be dry, keeping the water from the clusters—i.e., avoid watering directly over them, and allow it to soak in before again covering the bed. Write to the Secretary of the Society about the medal.

**Vine Roots in Outside Border (Merchant).**—Yours is not by any means an unusual case, the roots being often more abundant in the outside than in the inside border. This generally arises through the more uniform moisture outside. We should not at present interfere with the roots in the outside border, but it would be advisable to re-make the inside border and relay the roots found there nearer to the surface, and by keeping the border moist and mulching you will be able to fill it with roots, and then you may operate on the outside border in a similar manner. We should not lift the roots from the outside and bring them inside, as that would give a check, in all probability be fatal to the crop. There is no harm in the roots going outside, and we certainly should not seek to confine them to the inside by bricking up the arches by which they pass from the inside to the outside border. We should cut out the Vines of Muscat Hamburgh, and either plant young Vines or train canes from the others in their place.

**Auriculas not Growing (J. L.).**—There is certainly something in either the soil or the sand that is injurious to your plants. We should obtain both loam and sand from a fresh source, shake out the plants, wash the roots, and place them in small well-drained pots, using some wood ashes or crushed charcoal plentifully with the compost. If you can scrape some dryish leaf soil from the surface of the ground in a plantation or wood, not of Fir trees, this would be excellent for mixing freely with the loam and sand for inciting the production of roots, and far better than leaf mould that has been found in heaps after fermentation. You must apply water with great care, and protect the plants from frost. There may be iron in the soil for anything you think to the contrary. At any rate, use no more of it, but get what you can in the manner suggested—loam as well as leaf mould if you can collect it from under Beech or Oak trees. Half the bulk of the compost may be of the natural decayed leaves until the plants have produced fresh roots, then repotting in a preparation in which loam predominates. Let the pots be quite small, and if you plunge them in ashes the soil will be kept more uniformly moist without giving water frequently. We regret your failure, and trust we have pointed out a remedy.

**Eucalyptus in a Hall (Mrs. H.).**—You say the tree has been "lately removed into a tub." If by lately you mean since October, the check to the roots is quite sufficient to account for the collapse of some of the leaves. Further, you say it has had "exactly the same treatment" as to watering in the hall as it had in the greenhouse. It would require different treatment—that is, not nearly so much water, after being removed and placed in fresh soil as before. If the old soil—that in the pot—happened to be dry in the centre of the mass when the tree was shifted, and the new soil has been kept quite wet, that would be quite sufficient to account for the condition of the leaves. If you had asked us about removing it from the tub after September we should have advised you to wait till March or April. The dry air of the hall has been the reverse of favourable, but we attribute the chief mistake to injudicious watering after the tree was placed in the tub. Nothing you can do will cause fresh leaves to form on the stem, and all you can do to

prevent the trees getting worse is to give sufficient tepid water to penetrate the entire mass of soil whenever the earth shows a disposition to crumble when rubbed, and never until then. It will not injure the tree to nip off the leader in March. This, provided the root-action is healthy, would result in an increase in the number of growths near the top, not at the base of the tree from whence the leaves have fallen. Those above, between the tiers of branches, will fall also if good judgment is not exercised in watering. You had better, perhaps, get a young tree and grow it in your greenhouse to take the place of the present one if it should not recover.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear sp. cs. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (J. A. P.).—*Cypripedium carolinum*.

## COVENT GARDEN MARKET.—FEBRUARY 10TH.

MARKET quiet, with good supplies of foreign goods.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	1 0 to 3 6		Oranges .. .. .	4 0 to 6 0	
" Canadian .. barrel	10 0	12 6	Peaches .. .. .	0 0	0 0
" Nova Scotia ..	10 0	12 6	Pears, kitchen ..	1 0	1 6
Cobs, Kent .. per 100 lbs.	27 6	30 0	" dessert .. ..	0 0	0 0
Figs .. .. .	0 0	0 0	Pine Apples English ..	1 0	1 6
Grapes .. .. .	1 6	4 6	Plums .. .. .	0 0	0 0
Lemons .. .. .	8 0	10 0	St. Michael Pines ..	2 0	6 0
Melon .. .. .	0 0	0 0			

### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	1 0 to 0 0		Lettuce .. .. .	1 0 to 1 6	
Asparagus .. ..	2 0	8 6	Mushrooms .. ..	0 6	1 0
Beans, Kidney .. ..	0 6	1 0	Mustard and Cress ..	0 0	0 0
Beet, Red .. .. .	1 0	2 0	Onions .. .. .	0 3	0 0
Broccoli .. .. .	0 9	1 0	Parsley .. .. .	2 0	3 0
Brussels Sprouts ..	2 6	3 0	Parsnips .. .. .	1 0	2 0
Cabbage .. .. .	0 0	0 0	Potatoes .. .. .	4 0	5 0
Capicums .. .. .	1 6	2 0	" Kidney .. .. .	4 0	5 0
Carrots .. .. .	0 3	0 4	Rhubarb .. .. .	0 2	0 4
Cauliflowers .. ..	2 0	3 0	Salsafy .. .. .	1 0	0 0
Celery .. .. .	1 6	2 0	Scorzonera .. ..	1 6	0 0
Coleworts .. .. .	2 0	4 0	Seakale .. .. .	1 6	2 0
Cucumbers .. .. .	0 6	1 0	Shallots .. .. .	0 3	0 6
Endive .. .. .	1 0	2 0	Spinach .. .. .	2 0	4 0
Herbs .. .. .	0 2	0 0	Tomatoes .. .. .	0 6	1 0
Leeks .. .. .	0 3	0 4	Turnips .. .. .	0 4	0 0

### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Amalia Sieboldi ..	9 0 to 18 0		Ficus elastica ..	1 6 to 7 0	
Arbor vitae (golden)	6 0	18 0	Ferns, in variety ..	4 0	18 0
" (common) .. ..	6 0	12 0	Foliage Plants, var.	each	0 0
Arum Lilies .. ..	12 0	18 0	Genistas .. .. .	10 0	12 0
Azaleas .. .. .	24 0	42 0	Hyacinths .. .. .	6 0	9 0
Begonias .. .. .	6 0	12 0	Marguerite Daisy ..	8 0	12 0
Bouvardia .. .. .	12 0	18 0	Myrtles .. .. .	6 0	12 0
Cineraria .. .. .	10 0	12 0	Palms, in var. ..	2 6	21 0
Cyclamen .. .. .	12 0	24 0	Pelargoniums, scarlet, doz.	8 0	9 0
Cyperus .. .. .	4 0	12 0	Poinsettia .. .. .	12 0	18 0
Dracena terminalis, doz.	30 0	60 0	Primulas, single, doz.	4 0	6 0
" viridis .. .. .	12 0	24 0	Solanum .. .. .	8 0	12 0
Erica, various .. ..	12 0	24 0	Spiraea .. .. .	18 0	24 0
Euonymus, in var. doz.	6 0	18 0	Tulips .. .. .	12 pots	6 0
Evergreens, in var. doz.	6 0	24 0			

### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. .. .	2 0 to 4 0		Lilies of the Valley, in		
Acacia (Mimosa), Fr., per			clumps or pots, per doz.	15 0 to 30 0	
bunch .. .. .	1 0	1 6	Lily of the Valley, 12 sprays	0 9	1 6
Arum Lilies .. ..	5 0	8 0	Marguerites .. ..	12 bunches	6 0
Azalea .. .. .	1 0	1 6	Mignonne .. .. .	12 bunches	3 0
Bouvardias .. ..	0 6	1 0	Pelargoniums, per 12 trusses	1 0	1 6
Camellias .. .. .	2 0	5 0	" scarlet, 12 trusses	0 9	1 0
Carnations .. ..	1 0	3 0	Poinsettia .. .. .	12 bunches	4 0
Chrysanthemums 12 blooms	2 0	4 0	Roses (indoor), per dozen	3 0	9 0
" 12 bunches	9 0	18 0	" Tea, French ..	dozen	1 0
Cyclamen .. .. .	0 4	0 9	" red, French ..	dozen	2 0
Epiphyllum .. ..	0 6	0 9	Spiraea .. .. .	12 sprays	1 0
Eucharis .. .. .	4 0	6 0	Tropaeolum .. ..	12 bunches	2 0
Gardenias .. .. .	6 0	18 0	Tuberose .. .. .	12 blooms	1 6
Hellebore .. .. .	0 6	1 0	Tulips .. .. .	dozen blooms	0 9
Hyacinths, Roman, 12 sprays	1 0	1 6	Violets .. .. .	12 bunches	1 0
Lapageria, white, 12 blooms	0 0	0 0	" Czar, Fr., .. bunch	1 6	2 0
Lapageria, red .. 12 blooms	1 0	2 2	" Parme, French, per		
Lilium longiflorum, 12 blms.	9 0	12 0	bunch .. .. .	4 0	6 0



### PROFITABLE FARMING.

THAT thrift and industry are thoroughly exemplified in small Sussex farms is undoubtedly true, as it is equally true that by the exercise of self-denial and by almost incessant



labour none of the farmers have had to give up farming or failed to meet their engagements. To obtain more land, larger farms, is the common aim of such men, and, laudable as this may appear, it is frequently the rock on which the hopes and efforts of years are shipwrecked. We are intimately acquainted with more than one instance of this. In one case the farmer had managed his little farm of thirty acres so well that he had brought up a large family, had saved enough money not only to enable him to purchase a cottage or two, but to render him dissatisfied with his profitable little farm, so that at last he left it for another of a hundred acres. From that time he ceased to be a prosperous man, and he entered upon an incessant struggle with difficulties, the primary cause of which was insufficient capital for such an undertaking. Ten pounds an acre has repeatedly been quoted as the amount which a farmer requires at the outset, but in many an instance he would do better, much better, with £15, or even £20 an acre. Let it not be thought that the investment of so large an amount per acre points to extravagant or reckless expenditure, but rather to the laying out of capital in such a manner as shall afford a large, speedy, and profitable return. This is one of the useful lessons so strongly enforced in the reports of the farm prize competition by the Royal Agricultural Society, and we strongly commend it to the attention of our readers.

Depend upon it, high farming still answers better than any other, only there must be keen intelligence, sound sense, and energetic action brought to bear upon it, and, we may usefully add, rigid economy. Granted reforms in agreements, in preferential rates, in local and imperial taxation, and in rents, to ease the burdens of the land, we are bound to insist that the farmer on his part strives earnestly for increased knowledge, better work, careful management, closer attention to details, a fuller development of what have been termed minor profits. The time for hard-and-fast rules of practice has long been past; we are all the sport of circumstances, and our farm management to be successful must accord with situation, seasons, and markets. Every year brings its peculiar trials and lessons, and we may add its opportunities. When the drought of last summer forced many a farmer to send his starveling ewes into the market in such large numbers that every pen was crowded to overflowing week after week, and prices fell to abnormally low rates, there was an opportunity for the realisation of "minor" profits for those who were in a position to turn it to account. This was a matter peculiar to the season and markets, worthy of especial remark, as denoting losses on the one hand and profits on the other.

Peculiarities of situation must always exercise a special influence upon the farmer's work. We showed last week how well the Sussex farmers turn the peculiar advantages of that favoured county to account. The report of the farm prize competition of last year affords valuable information of some clever and profitable practice in the north. Take for example Mr. Ashton's first-prize farm of 166 acres near Liverpool. Hired from year to year, without restrictions as to cropping or sale of produce at the high rent and tithe charge of £391, it is farmed under a system altogether adapted to the situation, everything which the farm produces being sold at Liverpool, the vehicles loading back with manure, principally from stables using sawdust bedding, but also from cattle sheds and latrines; the only exceptions to the carrying out of this system to the letter being in the case of autumn aftermath, which is let to cattle salesmen for grazing purposes, and realises about £60 a year, and also the produce of six acres of permanent pasture used for the grazing of stock. Mention is made in the full report of this farm of a working capital of £2000, of a labour bill of £600 a year, and of an annual manure bill of nearly £400. The cropping for last year was 34 acres winter Wheat (19 acres after lea, 15 acres after Potatoes and Turnips); 17 acres of Oats (5 after roots, and 12 after lea); 15 acres of Barley (5 acres of Tares, 22 acres of Potatoes, 2 acres of Swedes,

1 acre of Mangolds); 42 acres of first year's seeds (22 after Oats, and 14 after Wheat); 22 acres of second year's seeds (6 acres of permanent pasture). No strict rotation is followed but it is usually—First year:—Fallow crop, mostly Potatoes, and a few Swedes and Mangolds. Second year:—Wheat sown down with seeds. Third and fourth year:—Grass, usually cut five times in the two years. Fifth year:—Oats, and sometimes Wheat. The judges stated that—"If the total produce of crops were added together, and valued even at current market prices, low as they are, there would be no difficulty in proving that Mr. Ashton's general management with a view to profit is on a sound basis, and fully meets the requirements of the Royal Agricultural Society." Mr. Ashton's mixture of Grass seeds for his two-year layers is half bushel Pacey's Perennial Rye Grass, half bushel Italian Rye Grass, 3 lbs. each of Red Clover, Cow Grass, and Alsike Clover, 2 lbs. each of Timothy, Cocksfoot, Crested Dogtail, and Rib Grass, 1½ lb. each of Trefoil and Giant White Clover, and 1 lb. Sweet Vernal.

(To be continued.)

#### WORK ON THE HOME FARM.

Arrangements now being made for the application of what are usually termed spring dressings of manure are important, and demand our close attention, for upon the correct and timely doing of this work depends the degree of success to be achieved this year. Two things are all-important here: sow the manure early, and see that it is genuine. Avoid dealers' mixtures; procure each sort of manure separately, and have the mixture made under careful supervision at the farm. All winter corn must be dressed during the present month, to wait till March is to court failure. Do not forget that artificial manure must be dissolved by rain before it can be absorbed into the soil as food for plants. Apply the dressing to spring corn at the sowing, the manure to be sown broadcast immediately after the drills and before the harrows are used, in order that it may be so mixed with the surface soil that it may be held there, and some of it dissolved even before rain falls. Drought not unfrequently sets in early in March, and remember we do not always get April showers, and therefore in common prudence we must sow the manure so early as to insure its absorption before vigorous growth begins. For grass land early sowing is, if possible, even more important, and with timely sowing the effect of the manures we have so often recommended is more speedy and equally beneficial to that of farmyard manure, while it is much more economical. The manufacture and application of farmyard manure to pasture is so costly that one cannot but feel surprised it has gone on so long. To the mind of the ordinary farmer there is virtue in hulk and rank odours, and his perception of the real value of artificial manures is still vague and undefined. One has still to offer a sort of apology for making mention of them to him. The best way to attract his attention and to induce action for his own benefit is to give him tangible proof of the effect of artificial manure in the guise of superior crops. There must be no fitful hap-hazard use of these manures, but a certain quantity must be applied every year, so as to keep the land stored with fertility. We append the formula for Grass crop:—Half cwt. nitrate of potash, three-quarter cwt. nitrate of soda, half cwt. superphosphate, half cwt. steamed bone flour. Spring dressing for corn crops:—Quarter cwt. nitrate of potash, three-quarter cwt. nitrate of soda, quarter cwt. steamed bone flour, quarter cwt. superphosphate, quarter cwt. coprolite. For root crops:—Three-quarter cwt. nitrate of potash, half cwt. nitrate of soda, 2½ cwt. steamed bone flour, 2½ cwt. ground coprolite. Each formula is for the quantity required per acre.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain
1886.  Jan.—Feb.		Baromet- ter at 32½ inches and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.		deg.	deg.	In.	
Sunday .....	31	29.261	42.4	41.8	S.E.	36.1	45.8	35.9	62.1	30.2	0.294	
Monday .....	1	29.254	37.3	35.9	S.W.	36.4	42.8	34.1	74.7	28.3	—	
Tuesday .....	2	29.588	36.4	34.8	W.	36.2	42.7	33.7	73.8	28.4	0.198	
Wednesday ..	3	29.526	35.3	33.1	E.	35.6	39.2	32.9	55.8	27.1	0.097	
Thursday ....	4	30.126	34.6	33.9	N.	35.6	40.3	32.4	58.2	28.8	—	
Friday .....	5	30.232	33.4	32.4	N.	35.8	38.8	31.0	53.2	25.3	—	
Saturday .....	6	30.142	29.8	28.3	N.	35.6	39.0	26.7	73.0	20.1	—	
		29.733	35.3	34.3		35.9	41.4	32.4	64.4	26.9	0.689	

#### REMARKS.

31st.—Continuously wet early and heavy rain at intervals till 1 P.M.; bright afternoon; clear night.  
1st.—Fine bright day.  
2nd.—Fine and bright.  
3rd.—Snow in early morning and till 10.30 A.M.; dull, damp, and slightly foggy after.  
4th.—Fine and, as a whole, bright; but a few spots of rain about 1 P.M.  
5th.—Fine, but without bright sunshine; fog about sunset.  
6th.—Beautifully fine and bright, but colder.  
On the whole a fine week. Temperature almost identical with that of the previous week, and rather below the average.—G. J. SYMONS.





18	TH	Royal Society at 4.30 P.M.
19	F	
20	S	
21	SUN	SEPTUAGESIMA.
22	M	Royal Geographical Society at 8.30 P.M.
23	TU	
24	W	Society of Arts at 8 P.M.

### THE ROYAL HORTICULTURAL SOCIETY'S PROVINCIAL SHOW AT LIVERPOOL.



ORTICULTURISTS will welcome the announcement that the necessary preliminary arrangements have been made and the date fixed for a provincial Show at Liverpool in the present year. It was stated in the annual report that an invitation had been received from the Mayor and Corporation of that city, and that substantial guarantees were offered to induce the Society to hold an exhibition there. The pro-

position was so favourably received that the Council appointed a deputation to consult with the Mayor of Liverpool, inspect the proposed site, and make such other arrangements as they might think needful. On Saturday last the deputation was most cordially received by the Mayor and other officers, the matter was fully discussed, and in the result the Botanic Gardens and Wavertree Park were placed at the disposal of the Royal Horticultural Society for the purpose of the exhibition, the entire management being left in their hands and those of Mr. Richardson, the excellent Curator of the Gardens. The Council was further assured of the hearty co-operation of the Liverpool officials and horticulturists, and the formation of an ample guarantee fund was undertaken.

The date received careful consideration, but it was finally determined that the exhibition should open on Tuesday, June 29th, and remain open six days, closing on the following Monday. This is somewhat earlier than had been originally intended, but it was found to be more convenient in many respects, and will only necessitate great promptitude in the preparation and issue of the schedules. The success of the Show from a horticultural point of view will no doubt depend to a great extent upon this, and no time should be lost in placing these before intending exhibitors. The prizes also must not be stinted, and if the arrangements throughout are made in a liberal spirit it is confidently anticipated that the Society will score one of its greatest successes, provided only that all-important-factor the weather be favourable.

The site chosen is a very convenient one, easily accessible by tramcars and other conveyances, and it adjoins the great Shipping Exhibition, which will attract so many thousands of visitors to our great northern seaport this year. There is also a strong horticultural enthusiasm in the neighbourhood of Liverpool, as is proved by the excellent annual shows there held, which are rivalled only by those at Manchester. With strong local support and the friendly aid of horticulturists in other parts of the Kingdom an exhibition of remarkable beauty may be easily provided, such as will conclusively indicate that the revival of the Royal Horticultural Society's provincial shows is in every respect desirable. With the experience of the past to guide them, and having regard to the continuous influx of visitors to the "Ship-eries," also weather contingencies, the Council did not feel justified in making the requisite provisions which must necessarily be of great magnitude for a shorter term than

six days; and this being so, the dates of opening and closing were rendered necessary in consequence of the National Rose Society's Show at South Kensington, that has been fixed for the day after the closing of the "Provincial," from which the staff of the Royal Horticultural Society must be liberated.

### IMPORTED ORCHIDS—MADE-UP SPECIMENS.

MADE-UP specimen Orchids have caused much dissatisfaction for purposes of exhibition, and have occasionally been strongly commented upon. There is every reason to hope, however, that the practice of packing a number of small plants together in a large pot or pan will in a few years become obsolete. In these days of quick travelling large masses are imported in perfectly fresh condition, and in about two years with good cultivation they will produce strong-flowering pseudo-bulbs. The time required to thoroughly establish the plants entirely depends upon the treatment they receive, and the freshness of the plants when they arrive; but these large masses are now landed almost as perfect as when torn from the trees in their native habitat. It will be remembered that a sensation was created when an enormous *Cattleya* was conveyed safely to St. Albans, but since then large specimens have been the rule rather than the exception. Recently I had the pleasure of inspecting some plants of *Lælia anceps* and *L. albida* fully 3 feet in diameter and nearly as much in height, with plump pseudo-bulbs and with green fresh foliage. With good treatment such plants would make flowering pseudo-bulbs in one season and as strong as the original ones the second. When such plants as these can be imported in good condition there will be no need for making up specimens.

When these large plants are established in pots or pans, on rafts or blocks, those who have not seen such specimens at the time they were removed from the travelling cases may still be inclined to think that they have been made up, the more so because it is almost impossible to secure them in position in the exact manner in which they arrive. This cannot be done, neither is it advisable to try to do so, for in many instances if the plants are to be rendered really presentable they must be partly separated. This is not necessary in all cases, but where the leading growths are not regularly and evenly disposed they must be arranged at suitable distances over the pan or raft, so that when they flower there will be a regular head of bloom. Of course, it will always be very difficult to prove that they have not been made up, but this in every case cannot be helped, while in others leading growths may be bent and pegged into the position they are wanted without severing them from the remainder of the plant. It is often wise to remove a large number of old pseudo-bulbs as soon as the plants are received and before any attempt is made to start them into growth. It must not be inferred from this that I advise the removal of any that are perfectly fresh and plump, or any that will become so when heat and moisture are applied. This must not be done, for strong breaks often start away from these fresh plump leafless pseudo-bulbs. This is especially noticeable in the case of *Lælias*, *Cattleyas*, and many others; in fact, we have often had as strong growths from these as the leading ones.

Those who have only seen or purchased moderately small plants, after they have been cleaned, have no idea of the number of pseudo-bulbs in various stages of decay that exist about large masses. In a state of nature the decaying pseudo-bulbs cannot be removed, but decay or are dried, until they have the appearance of a quantity of peat amongst the stems and roots. These should be removed before the plants are subjected to heat and moisture. Those experienced in cleaning and trimming imported Orchids know exactly what to remove and what to leave. Those whose



experience is limited should remove all decaying portions and others directly they show signs of decay when placed in heat.

When Orchids are first imported light, heat, and moisture must be gradually admitted. The effect of strong light on the plants may easily be imagined after they have travelled a long journey confined in a dry case, for in this way only are they certain to arrive in good condition. Strong light combined with heat and moisture causes the plants to decay. Moisture should be most sparingly applied at first; in fact, any plant house if kept moderately dry will be suitable at first without syringing. If subjected only to a moderate temperature with proportionate moisture in the atmosphere they become plump and start strongly into growth in due time. More imported plants are injured by the application of strong heat from the first than by any other cause. If they are forced into growth they are generally weak, and the plants are a long time before they produce pseudo-bulbs strong enough to flower. The secret of success in establishing imported Orchids is to start them gently as regards heat, and when they are progressing to help them in every possible way to make a sturdy compact growth. If the Orchids are in good condition when they arrive, and are well treated, then they will make strong growth the first season, which must be ripened, and the plants will advance the following season with increased strength.—S.

### POTATO PLANTING.

THE Potato is perhaps the easiest vegetable to grow to secure some sort of a crop, but to obtain fine and plentiful produce requires thought, observation, and care. The different varieties of Potatoes require very diverse treatment, and it is chiefly owing to the rough and ready way of treating all alike that many growers differ in their estimates of varieties. It is unwise to judge a Potato from one season's results, for with some varieties that have disappointed me the first season I have first-rate results the following year. For instance, a few years ago I paid a high price for a pound of a new variety, and took great care in the planting, giving them my best ground, only to obtain a small crop of anything but fine tubers. I hastily resolved that the variety was worthless, and the following year after planting the others I roughly put these despised ones into a poor piece of ground in a corner and never troubled more until lifting time came, when I was surprised to find a fine crop of handsome Potatoes.

I prefer a whole set to a cut one, and as a rule I prefer rather large ones—the size of an egg; but here discrimination is required. Of weak growers I select large seed, and of such strong ones as *Magnum Bonum* tubers half the size of an egg are large enough. If required for exhibition one strong eye is quite sufficient to leave, and for a crop three, cutting the remaining eyes out. I usually slice a small piece off the heel also. A friend of mine cuts all the crowns off his tubers, leaving the side eyes only, but I cannot recommend this practice, for I have tried it with anything but satisfactory results.

In planting, if the soil is light I consider 6 inches the proper depth, but if heavy it is far better to draw a shallow drill to place the tubers in, drawing the soil from the sides to cover them. This will in wet weather keep the Potatoes high and dry and less liable to disease. When moulding up the season must be taken into consideration, for if very dry and hot, or promising to be so, it is best to draw up as much soil as possible, and if showery a slight moulding is quite sufficient.

If time and trouble can be afforded it is well to draw narrow trenches about 9 inches wide and 6 deep, placing the seed from 15 to 18 inches apart, and a yard from row to row, then cover them with good leaf mould mixed with old mortar rubbish well pulverised, and a heavy dressing of the *Aylesbury Native Guano*, than which I know no better manure for Potatoes. I have tried it two seasons with most excellent results. It is more profitable to give Potatoes a yard from row to row, or even 4 feet to strong growers, than to crowd them in at 2 feet apart. They obtain plenty of sun to all the foliage and a good circulation of air just when they are growing well, and require these aids to fruitfulness, and a good crop of *Broccoli*, &c., can be obtained by putting out plants between the rows, thus leaving no ground unoccupied.

Of varieties *Sharpe's Victor* and *Veitch's Ashleaf* are admirable for earliest crops, and the former is very useful in frames. To follow these *Sharpe's Duke of Albany* and *Match-*

less come in as second earlies, whilst for later crops I can very strongly recommend *Sutton's Reading Russet*, *Vicar of Laleham*, and *Snowdrop*. All the above varieties are of high quality, good croppers, and in addition are all excellent for exhibition. I have grown over one hundred varieties, and I cannot surpass this selection, but if more are wanted for exhibition alone *Porter's Excelsior*, *International*, and *Feltham White* are excellent for this purpose.—H. S. EASTY.

### CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 84.)

#### SOILS FOR FINAL POTTING.

MUCH depends upon the soil used for potting Chrysanthemums to obtain successful results. More particularly does this apply to the final potting. Soils of a complex nature are often recommended, as if elaborate mixtures necessarily possess extraordinary virtues. Good soil is important, but at the same time is only one element in the case. Growers who depend almost solely on fanciful mixtures for the production of flowers of the finest quality have much to learn. The effects of the best compost that can possibly be obtained may be completely nullified by errors in watering and general management. Without using soil of a proper character success cannot follow, but the after treatment of the plants is the all-important part to be studied. As Chrysanthemums have such a short season of growth, and so much has to be done in a few months, they must have all the support they can appropriate, and to this end the composition of the soil is not of so much importance as after-feeding. The soil, then, while it contains food must be regarded as a store for additional food that is required and given from time to time, the store or larder all the time remaining sweet. It is a mistake to suppose that soil must be prepared and stacked for six or twelve months previous to using it, and I am glad to see that old practice is fast becoming obsolete. Soils differ so much in their nature and component parts in different parts of the country that no absolute rule can be laid down as to what mixture is the best. I will endeavour to make this part as clear as I can to suit the various localities, first describing the different ingredients used.

Loam, as it is called, is composed of the top spit of an old pasture, cut in thickness according to the depth of the fibrous roots of the grass; in some places 3 inches is not too deep, while in others 1½ inch is enough according to the time the pasture has been laid down. It should be cut about three months previously to being used, or just long enough for the grass to decay, and prevent it growing through the surface in the pots. If the turf is light in character, and cut from where the land is of a sandy nature, ground oyster shells should be added, which have a portion of lime in them; but if the turf is taken from a district where chalk and limestone abounds add more charcoal and wood ashes in lieu of oyster shells. Charcoal is of great assistance in keeping the whole soil porous and acting as a storehouse for ammonia. If the turf is of a retentive character remove the fine soil by means of sifting through a fine sieve, as this fine soil tends to prevent a quick passage of the water when applied copiously, as it must be during hot weather in summer. Those growers having a rather light soil at disposal are much more favoured than those with soil approaching clay, as where the former kind is used the moisture escapes from it quickly, consequently feeding can be more frequently and safely carried out; therefore due care should be given to making heavy soil lighter.

Manure is the ingredient second in importance, and must be applied in some form or other. Well-decomposed cow manure is often recommended, such as falls to a powder when moved. This is wrong, because what beneficent properties can there possibly be in manure when decomposition has entirely taken place? Simply the shell is left which held the goodness; and it is the same with decomposed hotbed manure, as the violent heat caused by the mass during fermentation dissipated the ammonia, and it is the ammonia which should be preserved for the benefit of the plants. I do not approve of cow manure in any shape. I consider it injurious when used with soil of a heavy character, it being too close in nature, and far too binding with other parts. The best manure is that prepared as if for a Mushroom bed, excepting that the straw should be taken out. It is sweetened, yet most of the ammonia is retained. This is the best manure to employ for soils of both a light and heavy character. Fine ground bones, as well as dissolved bones, are also beneficial when used in proper quantities. Soot is a powerful and a beneficial agent when cautiously applied, but when used excessively it is most injurious. I have seen plants which had lost all their leaves and others presenting a very sickly appearance through the misuse of soot. Lime in a quick state is useful for the destruction of worms, the quantity used being in accordance with



the district from where the turf was obtained. In mixing the soil a handful sprinkled on occasionally is all that is required for the purpose. The sand used should be coarse and gritty, that which is fine and liable to bind together the other materials should be avoided. Clean coarse silver sand is the best. Leaf mould in a half-decayed state is an excellent ingredient to add, particularly in the case of heavy retentive soils, as it is of great assistance in keeping the whole mass porous.

Having described the materials to be used, let it be understood, for the final potting, as in a previous note I indicated the soil best adapted for them in the younger stages of growth, I will now give as near as I can the quantity of each component part. To be precise I purpose taking the two cases in hand—heavy and light soils, and give the details required in each composition. Taking the former kind first, I would advise as follows:—Three parts of fibry loam broken up roughly, the fine soil taken out, retaining nothing but the fibrous parts, one part of horse manure, one of half-decayed leaves, one part of coarse silver sand, a quarter of a part of fine ground bones, and the same quantity of dissolved bones; one part of charcoal and wood ashes, the former to be used in a rough state, adding a 6-inch potful of soot to 4 bushels of soil.

Where the loam is light in texture use four parts as fibry as possible; to this add two parts of horse manure, one part of leaves, half a part of coarse silver sand, the same quantity of ground oyster shells, half a part each of fine crushed and dissolved bones, and the same quantity of soot as advised for the heavier soil, thoroughly incorporate all the parts together, using all that can be so used in a rough state, as the action of mixing reduces the parts considerably, therefore if the turfy loam and other ingredients be chopped small at first, the mass becomes too fine through frequent turnings. The compost should neither be too wet nor too dry, but just a "happy medium," for if wet it is liable to run together too closely, and if it is too dry it cannot be made sufficiently firm in the pots.

#### RIGHT AND WRONG METHODS OF POTTING.

Chrysanthemums must be potted in a proper manner, or it is useless to expect flowers of the finest quality, therefore this part of their culture should be carefully considered. To the inexperienced growers potting Chrysanthemums may appear of no greater importance than potting any ordinary softwooded plant; but high-class blooms cannot be had from plants with soft sappy stems, which are the results often of improperly performing this part of their treatment. When they are potted loosely they grow strongly and produce large leaves, but are devoid of that solidity which is essential to success. The soil should be rammed into the pot very firmly with a blunt stick 1 foot long and 1½ inch in diameter at one end, the other end being cut wedge-shaped. In soil of a light character it is hardly possible to pot too firmly, but it is not so necessary with heavier soil, as the water will not percolate so freely, and should the drainage become defective trouble may ensue through the soil becoming waterlogged. When the plants are potted firmly the growth is not so rapid early in the season, but it is rendered solid and firm as growth proceeds, and is more likely to mature in a wet autumn. Let it be understood that I am now referring to the final potting.

As I stated before, the pots should be perfectly clean; the crocks used for the drainage also must be free from grit. For the largest pots 2 inches of drainage is not too much, and it should be carefully laid in. The piece placed over the hole in the pot should be much larger than the hole and quite hollow, not flat and close-fitting. Other pieces coming next should be smaller and properly packed around the first piece, finishing off with a layer of smaller pieces. Over the drainage place a layer of the roughest parts of the compost to prevent the fine soil running down amongst the drainage, thus preventing the free egress of water. The best material for this purpose is pieces of thin newly cut turf, as this does not decay so soon and is not so liable to clog the drainage. In the case of the heavy soil sprinkle a few leaves, charcoal, and a table-spoonful of soot over the pieces of turf. If the soil is light the soot only will be required. The soil should be firmly rammed down previous to placing the plant thereon. Do not cover the top of the ball of soil attached to the plant too deeply. Give a little to cover any surface roots that may have become bare through watering, but leave a depth of about 1½ inch to allow space for water and top dressing at a future opportunity. If the soil is moist no water will be required for two or three days; after this time a good soaking may be given.—E. MOLYNEUX.

(To be continued.)

#### GOOSEBERRY AND CURRANT CUTTINGS.

THERE are no fruit-bearing bushes or trees easier propagated than Gooseberries and Currants. Anyone who possesses the cuttings and a piece of garden may accomplish it. Cuttings should only be taken from

the best varieties, and the time to select them is at the pruning. Strong young shoots from 10 inches to 1 foot in length make the best cuttings. They should be well developed and thoroughly matured; cut them square, or nearly so, at the bottom, and the top should also be taken off with the knife, as the terminal bud is not a good one to form a handsome bushy top. When it is desired that the bushes should have extra long stems, long cuttings must be used. For ordinary dwarf bushes cuttings with 9 inches of a stem and 3 inches of a head will be found to answer well. In this case the whole of the buds, from the bottom upwards for 9 inches, must be nipped clean out, and as 3 inches of this will be required to be inserted in the soil, each bush will have a clear stem of 6 inches. Taller plants may be produced by making the cuttings 16 or 18 inches long, and then 3 inches of entire buds at the top will be sufficient to leave to form a handsome head. We are in favour of bush fruits having long stems, as when the branches grow out and incline downwards the fruit is sure to be bespattered with mud during wet weather, and we have known large quantities ruined in this way. This is the result of having the stems too short.

Many who have been looking forward to increasing their stock this spring would select their cuttings when the bushes were pruned, and since then they will have been resting with their ends in the soil, but it is not safe to leave them longer in this way, as a little mild weather would soon induce the buds to swell. They should be placed in rows, allowing 15 or 18 inches from row to row, and 6 inches between the plants. We have begun digging at one end of the piece they were being put into, and each row was placed in as the right distance was reached; but we never do this now, and prefer digging the piece first and dibble the cuttings in afterwards. They ought at least to be let 3 inches into the soil, and they should be made firm by treading round each one with the feet. They root quickest in a light sandy soil, and although a few may fail to grow, the majority will become good bushes.—A KITCHEN GARDENER.

#### CULTURE OF PEAS.

IN my notes upon this subject I have now arrived at the time when the Peas require examining every day. Pinch off all side shoots that may be growing, so that they may not stop the growth of the pod, and if the pods do not attain the largest possible size they are of little use for exhibition. I employ boxes to pack my Peas in, and I generally find the suitable boxes at the grocers or the tobacconists. If I am about to show a dish of small-podded Peas I find a cigar box is best; if they are large-podded Peas a box which has contained black lead is a useful size. Nothing is better for lining the boxes inside than Rhubarb leaves, also to cover the Peas with, as the leaves are cool in hot weather. Pack the pods in the boxes stalk end upwards, as they will travel very much better and show more bloom when taken out, also are better to handle than if packed upon their sides. When gathering the Peas for exhibition I always have the box with me, clip off the Peas, count them as I gather them, touching or handling only the stalk, and then I find the Peas come out of the boxes as fresh as though they had just been cut off the haulm.

The last ten days before the show I have found to be rather an anxious time, as in some seasons the Peas have been a little too forward, and at others I have had the misfortune to have the pods bruised with hailstones. Now as a preventive against hailstones or very powerful sun I make a stage each side of the row that I wish to preserve for exhibition, and I do it in the following simple way. Some strong stakes are procured, such as are used for Kidney Beans, say about 6 feet high for tall varieties and others in proportion. Point them and place them in the land about 6 feet apart, then nail some light stakes upon them from one end of the row to the other, and you will have a light stage to cover with calico a yard in width along the row. This I find at times to give great assistance in keeping my Peas from becoming too old or being bruised by hailstones. I may say the calico will last for several years. If the Peas were only for profit I should not be at the trouble and expense of shading them, but when cultivating them for exhibition I think nothing a trouble.

In these few notes I have indicated the principal part of my practice, with the exception of this—when the Pea haulm shows five pods set I take off the lead if they are for exhibition.—H. MARRIOTT.

#### PEONIA MOUTAN.

ENORMOUS supplies of flowers either on the plants or in a cut state are required in all homes, to meet which the energies of the gardener and the resources of the establishment are greatly taxed, as it is not enough to have the legitimate occupants of stoves and greenhouses giving their wealth of flowers in season, but plants hardy and out of season must be pressed into the service in order to maintain an unbroken supply of bright and sweet flowers through the winter and spring. Of this no one complains if only the means are equal to the demand, but when the means are few and the demand large it would be well to consider whether there is not more expected than can well under



the circumstances be forthcoming, which would save many a member of the craft much anxiety. When it, however, becomes a question of ransacking flower and shrubby borders in order to get plants for forcing, despoiling the garden of its brightest and most charming early-flowering plants, creating a blank that will then be glaring, it is questionable if the "game is worth the candle." It is truly astonishing to see the demand for and the uses to which flowers are now put, and yet we are asked to look upon the decline of gardening. Establishments noble and gentle are being reduced on every hand, the demand for the gardener and his wares is being discounted, which I think is not true, certainly not of floriculture, as the demand for flowers is decidedly an increasing one, pervading all classes.

So great has been the demand of late years for flowers at the dreary season that most everything with showy flowers amenable to forcing has been pressed into the service from the Christmas Rose to the Forget-me-not, bulbs without number, plants and shrubs without end, it not being a question of posies but of bouquets—"buckets," remarkable only for ungainliness—requiring as many flowers as were formerly required to fill all the vases. All is changed—then we only had decorations at party times; but now the table and other decorations are permanent we are advancing truly in floral if not in practical horticulture, hence I think the depression no evidence of its decadence. Chrysanthemums are over by this time, and we miss them much—their size, quaint forms, and rich colouring. Camellias, queen of the greenhouse, Azaleas of dazzling brightness, and the whole category of winter-flowering stove or greenhouse plants, with the usual plenitude of forced plants, lack the bold characteristic beauty of the Tree Pæonies. The foliage is striking, the young growths really picturesque, and assume shades of violet and crimson to green, and the flowers are immense; there is nothing like them grown under glass so large and taking as to excite admiration, making indeed a grand display. Size renders the flowers conspicuous, and the shining glowing shades of colour give a brilliant effect. This of their effect indoors. Outdoors they are not very hardy, and the foliage and flowers are liable to be nipped by late frosts. Where, however, they succeed they are grand, and I have seen them as far north as York; indeed, there were fine bushes on the lawn where I first practised gardening over thirty years ago, which only had a good dressing of leaf soil every autumn, and had been raised by these annual dressings until the plants appeared on hillocks, and as the growths were pegged down they formed half balls nearly 12 feet across and were brilliant when in flower. Stakes and mats were ready to throw over them in case of frosts in spring, and the ground having a sharp incline to the south, and being sheltered to the north by shrubberies, they had every chance, much of the success being due to the copious supplies of liquid manure given when coming into bloom and through the summer. The soil were a heavy loam over clay.

There is one thing about these Pæonies which I particularly wish to note—viz., their not doing well with the ordinary treatment given other plants in herbaceous or shrubby borders. It lives certainly and flowers sometimes, but it is not by any means remarkable. Certainly it is one of those plants that has been long subjected to careful and high culture, and when this is relaxed it recedes in vigour, floriferousness, and quality of bloom. Anyway, it is no use having it unless it is grown, for it will do nothing but disappoint; therefore afford deeply stirred well enriched soil, mulch so as to encourage free root-action, and feed liberally so as to secure stout growth and plump well-developed buds. Plants so treated for a few years will make a beautiful display in early summer, and if lifted and potted in November they make a grand display in the conservatory. They bear gentle forcing, doing well in a vinery or Peach house and forcing house with a temperature of 50° to 55° by artificial means, and 10° to 15° rise from sun heat.

Propagation is effected in various ways, but chiefly by grafting to which I allude, as in planting it is necessary to cover the graft or junction of the scion with the stock. A few good sorts are Jewel of Chusan, white; Comte de Rambutan, white, rosy centre; Dr. Bowring, rose; Van Houttei, rose, edged white; carnea plena, Carnation; Robert Fortune, scarlet; purpurea plena; and Elizabeth, scarlet. Rose a odorata, Arethusa, incarnata plena, and odorata Maria have fragrant flowers.—G. ABBEY.

### PRIZES FOR GARDEN PRODUCE.

As is well known, there are numbers of gardeners in almost every district who grow excellent produce for home requirements but make no special efforts in growing articles for public exhibitions. Large specimen plants are of no use for their purpose, neither are sensational bunches of Grapes nor big vegetables. They grow table and room-decorative plants admirably, also fruits and vegetables in variety and the most acceptable condition for the requirements of the family. Such men labour as well and as

worthily as those who have opportunities of preparing products to stage in competition for prizes that are offered in schedules. There are no prizes for hundreds of able plodding men, who are just as capable as those who are encouraged to exhibit, but their capacity is displayed in a different and not less useful manner. Cannot something be devised whereby these industrious home workers may have an opportunity afforded them to receive official approval?

As regards plants, the difficulty of the non-specimen growers competing at public exhibitions was surmounted by the introduction of "groups of plants arranged for effect" in a given space. The introduction of these classes in schedules has been a great success. I was, as far as I know, the first winner of prizes of this nature, and I have reason to know my advocacy of the extension of the principle has not been without effect. I would now ask if the time has not arrived when a further extension of the principle might be tried? If a space of 50 square feet or 100 square feet can be placed at the disposal of a gardener to occupy artistically with plants, cannot similar space be afforded, and at least as well occupied with miscellaneous garden produce—plants, flowers, fruits, vegetables, examples of vase decoration, hand and coat bouquets, wreaths—indeed, everything that a gardener can arrange as representing his work and practice? It seems to me that some highly creditable arrangements might be produced at once suggestive and artistic, the disposition of the exhibits to be left entirely to the competitors. The prizes should be determined for quality, not size of products, and effect. All fruit and vegetables should be named. If a trial were made of this plan, would it not impart variety and interest to shows? The first results would not be perfect, but improvements would naturally follow, and if these should be as marked as in the "effect groups" of plants, both societies, exhibitors, and the public would be gainers. Is this crude idea worthy of the consideration of the authorities of the coming provincial Royal Horticultural Show at Liverpool? and if so, will they offer good prizes for its development? Small amounts, as if provided as a sort of apology, would "settle" the matter at once, and it would be done with—for a time.—EX-EXHIBITOR.

### MUSCAT OF ALEXANDRIA AND BOWOOD MUSCAT.

YOUR correspondent "G. G." evidently believes that Bowood Muscat is a distinct variety from Muscat of Alexandria, and judging from his experience of the two he is entitled to consider them distinct. A variety of Muscat that sets its fruit under such difficulties as those detailed by "G. G." is worth increasing, and all growers should endeavour to obtain Bowood Muscat, when all doubts and fears attending the "setting" process will be finally dispelled.

"G. G." says that any grower could not fail to notice the difference between Bowood and the ordinary Muscat of Alexandria as grown at his place, but appears to think that a bunch of each variety laid side by side would not be easily, if at all, distinguished by even "better judges" than himself. The next sentence, however, rather contradicts this assertion regarding Bowood and Muscat of Alexandria, as "G. G." says "I have seen Muscat of Alexandria and Bowood Muscat shown in a collection of four varieties and carry off chief honours." Evidently this means that Bowood and Muscat of Alexandria were shown in the collection of four varieties referred to as distinct varieties, and were so accepted by the judges. From this it would seem that Bowood Muscat as grown by "G. G." is not so distinct in appearance from Muscat of Alexandria as it is to be seen elsewhere, and notably as it was shown as mentioned.

There seems considerable confusion and uncertainty about Bowood Muscat, but certainly "G. G.'s" statement regarding the good "set" obtained under adverse circumstances from a Vine which he has reason to believe is Bowood Muscat is calculated to make people wish that Bowood were more abundant, so that no fears regarding dull cold days and low temperature need perplex and annoy growers of Muscats who wish to grow a good "set." "G. G.'s" statement is certainly a very remarkable one, and if there are no other reasons which can be advanced for the success of the one Vine of Muscat and the failure of the other three, then it is to be hoped that he will not only increase the cultivation of the Bowood variety, but also kindly let others who may apply to him have a few eyes of it another season.

This is such an important difference that all should note it, and further remark would be interesting. I hope "G. G." will state if any artificial impregnation was resorted to in the above case; if so, if all were so treated; if the Bowood may not have been in proper condition for fertilising when attended to, and that the Muscat of Alexandria, being later, may have not been in condition for fertilisation at all, owing to the breakdown of the boiler after the Bowood had been impregnated either with or without artificial aid, but before the Muscat of Alexandria had arrived at the flowering



stage? The difference of ten or twelve days which "G. G." found in regard to Bowood and Muscat of Alexandria may account for the good "set" of the Bowood and the failure of the Muscat of Alexandria.

The Bowood may have been fertilised before the boiler broke down, and the Muscat of Alexandria may just have been timed to be in flower during the twenty-five days without fire heat. Consequently failure in one case and success in the other. Fuller details regarding the matter will no doubt be welcome to more than—  
A READER.

### CYPRIPEDIUM LEUCORRHODUM.

THIS is one of the numerous hybrid *Cypripediums* raised in Messrs. Veitch & Sons' Chelsea nursery, and though it is about ten years since the cross was made, the plant did not flower until last year. It resulted from crossing *C. Roezli* and *C. Schlimi album*, and is curiously intermediate between the parents, the flowers being of a soft delicate rosy



Fig. 21.—*Cypripedium leucorrhodum*.

tint, nearly white in some parts, with a full rounded slipper-like lip. The plant is very strong in growth, producing leaves of considerable length, broad, and bright green. Now it has reached the flowering stage it will probably produce blooms every season, and it is somewhat strange that some exceedingly floriferous hybrids have required so long a time to reach that stage as seedlings.

The two species named have been employed with others in the production of several beautiful hybrids, of which may be mentioned *C. alborpurpureum*, *C. cardinale*, *C. porphyreum*, *C. Sedeni*, and *C. Sedeni candidulum*, all possessing a general resemblance to each other. *C. Sedeni* is one of the most useful hybrids hitherto obtained, and *C. cardinale* is very handsome. A charming group is being formed, which is often referred to as the "Sedeni family" with peculiar appropriateness.

### SMALL GARDENS.

It is becoming generally recognised that we must not always expect to find the best gardening in the largest establishments, not because those in charge are deficient in ability, but because too often they have not the means requisite to keep an extensive garden with numerous glass houses for fruit and plants in the condition that they desire. When such a garden is adequately supported, as happily we can still see in many cases,

we expect to find the art of the horticulturist in perfection, and we are seldom disappointed. When, however, a competent practitioner has charge of a comparatively small garden he often has greater facilities for insuring success than where his attention is spread over a wider area and he has to entrust the execution of important details to subordinates. In a small garden everything comes directly under the eye of the chief, and the results are materially influenced by his knowledge and experience. There are now innumerable gardens around the metropolis and large cities which well deserve the title "model gardens" for the admirable examples they present of good all-round practice, or in other instances they have a local fame for specialties. Many a useful lesson can be learned in such places; some first-rate gardeners have there gained the rudiments of an education that they have subsequently applied to excellent purpose. There is a strong inclination amongst young men to serve in large gardens, but they often learn less in two or three years' service in such establishments than they can in twelve months under an able man in a smaller garden where they see the whole routine. It is also often more necessary to use a man's wits in economising the means or material at command to produce the best results in a garden of moderate extent than in one where there is every convenience that wealth can procure. A greater interest must also be felt when the attention is more closely concentrated upon particular objects, and a much clearer knowledge of the peculiar requirements of either flowers, fruits, or vegetables is so obtained. I have visited gardens of all descriptions and sizes, and have generally felt a greater satisfaction with those of moderate extent. I have also worked in both large and small gardens, and with but one or two exceptions I gained far more useful knowledge from the latter than the former.

These few lines have been prompted by a conversation I recently had with a young gardener whose great desire was to obtain admission into a nobleman's garden, and he had refused several good offers of situations in less important establishments. He preferred waiting, and perhaps wasting some months in anticipation of gratifying his fancy to taking a place that would probably have proved far more beneficial to him. I know there are many more like the one mentioned, and who think that, without some recommendation from a nobleman's gardener, there is not much chance of obtaining a good head place themselves. Some such feeling has prevailed, but it is being lessened, and employers seek for something more than this uncertain kind of testimonial. The fact is, the large gardens are decreasing in numbers and importance, while the smaller gardens attached to suburban villas and wealthy merchants' residences are increasing, and there is in consequence much more room for employment in these than the others. All young men who are waiting in nurseries for places and regretting their ill fortune would do well to consider this matter carefully.—AN OLD GARDENER.

### A COMPARISON OF MANURES FOR THE GARDEN AND ORCHARD.

[A paper by Professor G. C. Caldwell, Ithaca, New York, read before the Massachusetts Horticultural Society.]

(Continued from page 94.)

As already said, decaying vegetable or animal matter in the soil makes humus, or vegetable mould. This common ingredient of all arable soils is not necessary for plant growth; for, on a small scale, in pot culture good crops have been obtained in a soil as white as snow, and therefore quite free from any humus, but containing all the real plant nutrients that have been mentioned. But that this humus is an important ingredient of a fertile soil no one can doubt. Given two soils equally rich in nitrogen, potash, phosphoric acid, lime, and all such matters, but of which one is poor in humus and the other rich in it, but yet not so excessively rich as a bog or a muck bed, there is not a farmer or gardener who knows soils who would not give more for the soil rich in humus than for the other. In the course of the decay of these vegetable matters several acid substances are formed, and chiefly carbonic acid. These acids act on the large quantity of difficultly soluble plant food in every arable soil of fair quality, and aid in bringing it into solution, and thus within easy reach of the plant. Few farmers realise what a large native stock of crop food they have in their soils. In the case of a fertile soil from a Western State, analysed some time ago in Germany, there would be, by calculation from the analysis, in one acre of it, and within a foot from the surface, 2400 lbs. of phosphoric acid and 7000 lbs. of potash. But nobody in New England has a Western prairie soil on his farm; nevertheless, judging from analyses of twenty-five different soils of average quality by the same chemist, we may say that an average good soil will contain, within 12 inches from the surface, and therefore accessible to the crops, and fit for plant food if any means can be provided for bringing it into solution, 1500 lbs. of phosphoric acid, 1500 lbs. of potash, and over 1750 lbs. of lime. Compare these amounts with those that a crop takes up, and one can realise more fully the native value of a good soil. The quantities of phosphoric acid and potash in pounds, per acre, required by some of the more common crops are shown in the following table:—

	Phosphoric Acid.	Potash.
Corn, 50 bushels and its stover .. .. .	50	70
Potatoes, 150 bushels .. .. .	15	50
Wheat, 25 bushels and straw .. .. .	18	25
Apples .. .. .	20	50

These native supplies, then, so very much larger than the yearly demands of the crops, if we can bring them into use only a little every year, may go far towards producing these crops for the farmer or gardener. If humus by its decay helps to bring about the solution of these supplies



then it must be useful, since all such plant food must be taken up in solution.

That the carbonic acid, which is one of the main products of the decay of humus, does in some way favour vegetable growth is very neatly illustrated by an experiment performed many years ago by Stoeckhardt. Three deep glass vessels, two of which had holes pierced through the bottom, were filled with soil, and Peas were planted; through the hole in the bottom of one of the vessels and up through the soil there was passed every day a certain quantity of air, and up through the soil of another of the vessels a mixture of air and carbonic acid; the third vessel was left to itself, and the condition of things in it was about the same as in an ordinary soil with a very compact and impervious subsoil. The weight of dried crop produced in the third vessel without any circulation of air was about 90 grains, in the soil through which air was circulated 162 grains, and in the soil through which air and carbonic acid were circulated 190 grains. In some way the carbonic acid along with the air helped the crop amazingly, more than doubling it. This was not necessarily because the plant fed on this carbonic acid directly to supply itself with that most important element, carbon. It has been proved over and over again that vegetation supplies itself with carbon, at least mostly, if not entirely, from the carbonic acid of the atmosphere. The fair presumption is that the carbonic acid passed through the soil brought more plant food into solution, and so the crop was more liberally provided with this means of growth.

In support of this presumption we have the fact demonstrated also by Stoeckhardt, that the very soil which produced the largest crop, and therefore had yielded up the largest amount of dissolved plant food, still contained the largest amount of soluble plant food, ready for the next crop. The quantity of such soluble food was, in the soil of the closed cylinder without any circulation of air, 22 grains; in the cylinder furnished only with air, 43 grains; and in the soil to which both air and carbonic acid were supplied, 60 grains.

You will have noticed that the second soil, receiving only air, also gave a notable increase both of crop, and of soluble plant food left for the next crop. On first thought this result would appear to conflict with the explanation given of the increased crop in the third soil, that it was due to the carbonic acid passed through that soil along with the air. But there is not necessarily disagreement here; it is quite reasonable to suppose that the humus in this soil, together with the oxygen of the air that was circulated freely through it, produced the same effect and in the same way as was produced by the carbonic acid ready formed in the third soil. The formation of carbonic acid from the humus can take place only in the presence of oxygen, and the more liberal the supply of oxygen the larger will be the production of carbonic acid from a given quantity of humus. In this second soil we had, as in all the others, the ordinary quantity of humus; the supply of air, with its one-fifth part of oxygen, was liberal; carbonic acid must have been produced freely; and it would have been strange if there had been no increase of crop. Such a result would have tended to disprove just what we are seeking to prove, that the humus does a good work for the farmer by the carbonic acid given off in the soil as it decays, or oxidises, which two terms mean much the same thing.

Another experiment shows in a no less striking manner the part that humus may take in bringing plant food into solution: a sample of a sandy loam was compared with another portion of the same soil to which some humus had been added; in the course of the summer months, while a crop was growing vigorously on these soils, the quantities of potash that became soluble in the two soils were as 366 parts in the soil poor in humus to 574 parts in the other; the quantities of plant substance produced in the two cases were 5040 and 9800 parts.

(To be continued.)

### STRAWBERRY PLANTS IN WINTER.

"W. S.," page 87, objects to my statement that the practice of plunging the pots in an upright position, either in leaves or ashes in damp situations and in wet winters, often leads to disastrous results by the plants being kept in a constantly wet and sodden state during the period of rest, when comparative dryness should be their condition; and he points out to me that "there is no necessity for this being so, if the site selected for that purpose be higher than the ground surrounding it." It is quite evident that "W. S." does not comprehend my meaning. What I wished to show was that the rainfall in wet winters in this climate, especially when the small amount of evaporation is taken into consideration, is much greater than is beneficial to Strawberry plants in pots prepared for early forcing. I freely admit that in elevated and breezy positions where the evaporation is great no serious evils may result, but the case is very different in low-lying damp localities, where the dryness of the air is not sufficient to keep the plants plunged in an upright position in a healthy condition. The usual practice in preparing Strawberry plants for forcing is not only to pot them in strong loam, but also to ram the soil down firmly. Under these conditions rain cannot freely pass through the soil, and in changeable frosty weather the space, as I explained before, between the surface of the soil and the rim of the pot frequently becomes a mass of ice and the plants suffer considerably. "Such a condition cannot, I venture to say, be the best winter quarters for Strawberry plants in pots intended for early forcing." They may be covered lightly with dry fern, and so long as the fern continues dry and can be removed daily no serious injury may accrue, although the labour and inconvenience is great; but at times the covering cannot be removed for days or even weeks together, when serious injury must result. I have tried both methods not only for fourteen, but for nearly forty years, and

I have no hesitation in saying that the plan of stacking them on their sides in ash heaps is the most safe, economical, and satisfactory.

"W. S." expresses a wish to know "upon what grounds I arrive at the strange conclusion that the condition of Strawberry plants in pots which are laid on their sides in ashes during the winter and early spring months, is more nearly like that to which they are naturally accustomed." My reasons for forming this conclusion are simply these. I have found by experience that after excessively wet winters not only do Strawberry plants in pots plunged in an upright position suffer considerably, but those in the open garden do so likewise, unless the position be elevated and comparatively dry. If we look to the States of Virginia and Carolina, whence came the Strawberries from which our cultivated species are chiefly descended, and where they are said to flourish in their native luxuriance, the winter and spring seasons are not only more severe than ours, but the rainfall during those seasons is less, while the air is considerably drier. Although the rainfall during the growing season is greater than with us, yet the evaporation and consequent dryness in such an elevated region, which is said to range chiefly between 500 and 700 feet above the level of the sea, must be much greater than we experience in this humid climate. The other vegetable products of these States also show most plainly what the conditions of climate are there, and wherein they differ to those of this country. These are some of the reasons which induced me to write the paragraph to which "W. S." objects, and these are also my reasons for concluding that Strawberry plants arranged as I have advocated are placed in more natural conditions than when arranged as "W. S." prefers, and I venture to think they are "quite in harmony with those conditions under which the plant flourishes naturally."

In conclusion, I cannot forbear asking "W. S." how he arrives at the somewhat strange conclusion "that the Strawberry plant in gardens, during the resting period, receives direct from the clouds three times the amount of water at the roots that it does at any other time?" I fear his rainfall tables are somewhat inaccurate.—T. CHALLIS.



It has been finally arranged by the Council of the ROYAL HORTICULTURAL SOCIETY TO HOLD A PROVINCIAL SHOW AT LIVERPOOL in the ensuing summer. Through the liberality of the Worshipful the Mayor and Corporation of Liverpool, the Botanic Garden, and so much of the Wavertree Park as may be necessary, have been placed at the service of the Royal Horticultural Society, and no better place could have been found. The Show will be opened on Tuesday the 29th June, and will be closed on the evening of Monday the 5th July.

— AN obvious misprint occurred in the report of the UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY on page 110, still it is advisable to correct it. Instead of the contribution of 2s. to the deposit fund annually it should be monthly; the other contributions are correctly stated in the report.

— "J. R. S. C." writes:—"Some one asks about CATCHING MOTHS. I presume he means moths in general, not those of the clothes moth group. Some sweet compound is effectual—treacle better than sugar, duly diluted and flavoured with rum or aniseed, some say; but all these are uncertain at particular times."

— IN the report of Mr. J. Pavey's paper on the CULTURE OF HARDY FRUIT TREES, read at the Lee, Blackheath, and Lewisham Horticultural Meeting on the 29th ult., it is stated that Mr. Pavey advised dissolving 8 lbs. of softsoap in 4 gallons of boiling water for the destruction of American blight. This was a mistake; it should be 2 lbs. of the softsoap to the quantity of water stated.

— AT the fortnightly meeting of the HUDDERSFIELD PAXTON SOCIETY, the President, Mr. G. W. Rhodes, in the chair, Mr. C. Smedley gave an excellent paper on the Amaryllis. The essayist, a good cultivator of this class of plants, was listened to most attentively. An interesting discussion followed. Mr. Jarman, Vice-President, described some splendid hybrids he saw at Messrs. Veitch & Sons' last season. A hearty vote of thanks to the essayist and Chairman brought a very pleasant evening to a close. On February 27th Mr. F. Milan, a practical hot-water engineer will give a paper on "Domestic Hot-water Supply."

— "M." WRITES, "A year or two ago the pretty bulbous plant FREESIA REFRACTA ALBA was comparatively scarce, but it is now



much more frequently grown, and the flowers may be seen in many florists' windows, especially in Covent Garden Market. The flowers are white, delightfully fragrant, and beautiful in bouquets, though they are not very durable. It is particularly well adapted for culture in pots, and a few dozen bulbs would be a serviceable addition to any collection."

— WE learn that MR. J. JOHNSTONE has resigned his charge of the Baby Hall Gardens, the residence of W. Pilkington, Esq., after having the care of them for nine years. A report of these Gardens appeared in our pages a few years ago, and their condition generally testify to his ability as a practical gardener. We hope that he will soon find another suitable position.

— GARDENING APPOINTMENT — Mr. George Easton, late gardener to C. R. Hodgson, Esq., Copt Hall, Hendon, has been appointed gardener to Wm. More Molyneux, Esq., Losely Park, Guildford, Surrey.

— THE monthly meeting of the BELGIAN SYNDICATE OF HORTICULTURISTS was held in the Casino, Ghent, on the 8th inst., Mr. J. Closen of Liège presiding. M. Ch. Van Geert of Antwerp was Secretary, and the following were present:—MM. E. Vervaeet, Ph. Blancquaert, Jules Hye, A. Desmet, L. Desmet Duvivier, A. Rosseels, and B. Spae. Certificates of merit were awarded for the following plants:—*Ethyma spectabilis*, from M. Ad. D'Haene; *Antburium leodinense*, from MM. Jacob Mackoy and Cie.; *Cypripedium marmorophyllum*, from M. E. Pynaert Van Geert; and *Begonia Gloire de Sceaux*, from M. A. Van Geert. A cultural certificate was awarded to M. B. Spae for *Cocis Yatai*, and honourable mention for a seedling *Clivia*, Jules Hye, from M. Spae Vandermeulen; *Lycaste Skinneri alba*, from M. James Bray; and a seedling *Clivia*, from M. E. Pynaert Van Geert. Honourable mention for good culture was also accorded to *Dracæna Lindenii*, from MM. Blancquaert et Vermeire.

— AT a recent meeting of the members of the WAKEFIELD PAXTON SOCIETY, Councillor Milnes presided, and Mr. Hudson, gardener at Sandal Grange, was in the vice-chair. There was about an average attendance. Mr. J. A. Mann, gardener to Mr. D. B. Kendell, J.P., Manor House, Heath, read a short but most interesting paper on "The Bouvardia," a beautiful winter-blooming stove plant. Mr. Mann, who has for some years past been a successful grower of the Bouvardia, fully and clearly explained his mode of growing and propagating the plant, and stated that by the mode of treatment he recommended he always produced fine large plants and an abundance of sweet and beautiful bloom at a season when flowers are usually very scarce. He said there are about thirty-four varieties, and he named several which he had, by experience, proved to be good sorts. A number of questions were put to Mr. Mann by Messrs. Hudson, Preston, Garnett, and Brown, and the prompt and clear manner in which they were answered showed that Mr. Mann was thoroughly acquainted with his subject. On the motion of Mr. Hudson, seconded by Mr. J. Lee (St. John's), and supported by other members, a very hearty vote of thanks was accorded to Mr. Mann for his maiden essay, and a hope was expressed that this would not be his last appearance before the members of the Society in the character of an essayist.

— AN American correspondent sends the following cutting from the *New York Tribune*:—"Mr. G. Cowing, the Indiana horticulturist, had several trees of the KIEFFER PEAR killed by the frosts of last winter, though none of his other varieties were injured. He quotes 'many of the best judges of fruit throughout the country' as testifying that this sort for table use is 'hardly passable,' and adds, in the *Indiana Farmer*:—"It appears to grow well and produce abundant crops of showy insipid fruit in a few places in New Jersey and in some portions of the south, but the prominence it attained in the middle and northern States was mainly due to a liberal use of printers' ink."

— IN the volume devoted to the BOTANICAL RESULTS OF THE "CHALLENGER" EXPEDITION, which is just issued from the pen of Mr. B. Hemsley, there is much of an interesting character, as can be judged from the following extract relating to the DISTRIBUTION OF PLANTS:—"The seeds of many almost ubiquitous sand-binding grasses may be reckoned among those which are cast ashore in a vital condition, and we assume that these grasses are amongst the first flowering plants to obtain a footing. Other herbaceous plants met with in the earliest stage of such an insular flora are *Portulaca*, *Sesuvium*, *Canavalia obtusifolia*, *Ipomœa biloba* (I. pes-capræ); all of which seem to possess an unlimited power of colonisation. Moreover, they provide the conditions necessary for other plants to be able to establish themselves. Among the early

shrubby occupants, *Suriana maritima*, *Pomphix acidula*, *Scaevola Koenigii*, and *Tournefortia argentea* are prominent, being found on the most remote islets of the Pacific and Indian Oceans within the tropical and sub-tropical zones. Where there are muddy shores, there the various Mangroves (*Rhizophora*, *Bruguiera*, *Avicennia*, *Vitex*, &c.) take possession. Among the first real trees are *Heritiera littoralis*, *Hibiscus tiliaceus*, and *Barringtonia speciosa*, together with Screw Pines. After this nucleus of a flora has been formed, it is comparatively easy for other arrivals to establish themselves; and every addition in a measure helps to provide the conditions for a still more varied vegetation. And he concludes:—"It may be safely assumed, therefore, that if oceanic currents and birds have not been the means of dispersing a large number of species of plants, and it is not certain that they have not, they are certainly the most important agents in stocking islands, for without their action the numerous remote coral islands, at least, would still be utterly devoid of phanerogamic vegetation, and consequently uninhabitable."

— PRESIDENT BARRY in his opening address at the annual meeting of the WESTERN NEW YORK HORTICULTURAL SOCIETY gave the useful reminder that where Apples, Pears, and other fruits are sorted, and only the best specimens sent to market, good prices are secured, and if no other grade were marketed there would be no complaint of surplus, and the gross income would be as great. Our fruit crops may be doubled in value by a few years of first-class culture—soil made rich; trees carefully pruned; fruit thinned, if necessary; gathered carefully by hand-picking; honestly packed; the whole business systematised, and conducted in the most economic manner. In some instances last season prices were lower than ever known before, especially about Rochester, where the supply was large. As a whole, however, the fruit business was more satisfactory than ordinary farming.

— AT the same meeting, referring to the APPLICATION OF LIME AND SALT TO SOILS, Dr. Caldwell quoted the saying that application of lime tends to make the father rich and the son poor, and the same may be remarked of salt. It loosens fertility locked in the soil, and renders it available, but does not add fertility. There are, however, very few soils that have not lime in abundance, and also salt. Salt is largely applied to compost heaps, but it is not so good an absorbent as common earth, and cannot be compared with plaster or gypsum, which does prevent the escape of ammonia. Salt in the compost heap renders the same service as the application of water; it keeps the manure moist, and thus prevents heating and firefang. Several members thought that application of salt to Wheat fields stiffens and brightens the straw, and causes the Wheat to be lighter in colour. Salt also retards ripening in dry weather, and has been sown upon Barley with benefit. Dr. Hexamer said he applied salt freely to certain rows of Asparagins in a large patch without any visible result; he considers that salt is of no benefit to this plant. Mr. Caywood gets no Quinces unless he applies salt freely. Other members said they apply salt to Plums and Pears with good result.

— ANALYSES OF PLANTS.—"J. L. B." writes:—"Will you please insert the following in your next issue, and will you kindly publish any tables that may be sent in reply? Will someone give me tables of the composition of plants (from analyses), particularly those of the *Chrysanthemum* and the *Rose*? I may add that I have the 'Gardeners' Assistant,' in which there are several given, and any that that work does not contain I shall be very glad to have, or to know where I can obtain them."

— ORANGE CULTURE IN NEW SOUTH WALES.—In no part of the world are Oranges grown to such perfection or with more ease than in New South Wales. Anyone with a small garden can grow a few Orange trees, the rearing of which occasions far less trouble than that of the Currant trees or Gooseberry bushes in an English cottage garden.

#### THOUGHTS ON CURRENT TOPICS.

FROM what I have heard I think Mr. Bardney surprised not a few persons by his advocacy of 12 per cent. of lime as a suitable proportion to Vine borders. It is a large quantity no doubt, but it is a question if it is excessive for Vine borders made of limeless soil, and have besides been much enriched with repeated top-dressings of manure, producing much humus. I believe that soil considered satisfactorily fertile for agricultural purposes contains, or should contain, 6 per cent. of carbonate of lime, and may contain a good deal more. What does this mean? It means that if the soil contains no lime a very large application is needed to enable 6 per cent. of carbonate of lime to be added; 300 bushels of slaked lime per acre and mixed with the soil to a depth of 6 inches will be only 1 per cent. That is obviously quite inadequate for Vines.



A POSSIBLE danger of using lime excessively is pointed out by "A. L. G." on page 62; and he quotes a passage from a work on chemistry in opposition to the teaching of Mr. Bardney's Cabbage bed. The evidence afforded by that practice is in my opinion valuable. As the late "Single-handed" often pointed out, the soil immediately in question is the best laboratory, and when the results of careful practice are in conflict with the teaching of books the books are the least reliable, because authors cannot possibly have regard to special local governing influences, their reasoning being necessarily founded on general principles. I have applied lime at the rate of 700 bushels an acre with the most marked benefit to the crops; and if I found a Vine border made of limeless loam, and also rich in humus by continuous top-dressings of manure, I should quickly apply lime in still greater quantity.

WE have also to consider what Mr. Bardney suggests, the readiness with which lime is washed out of the soil. Lampadius' experiment is conclusive on this point. He added lime to a plot of ground in proportion to 1.19 per cent. of the whole, and by the action of the rains alone it diminished in one year to 0.89, the next 0.52, and the third 0.24. Well-drained Vine borders often get five times the quantity of water that falls from the clouds in the same area in the district, and the lime is more rapidly removed; nor is this all, for in soils rich in animal and vegetable matter combinations occur that accelerate the removal of lime by filtration. Acids, the result of oxidation, in rich soil combine with carbonate of lime and release carbonic acid for plants, and a portion perhaps to be wasted. This, however, is of trifling importance in comparison with the action of lime on nitrogenous matter in yielding ammonia, and this does not escape in any material quantity, but is stored in the soil for use. This is what science teaches and practice confirms.

I ONCE took charge of a garden that had been heavily manured for say a century; it was a mass of humus, yet unproductive. For the first two years not a particle of manure was dug into the quarters, but lime was supplied instead, and for seven years no manure was given to the bush fruit quarters. The change to fertility was marvellous, and the garden is now as productive as anyone can desire. There is a vast amount of plant food locked up in the land of overrich gardens which lime can liberate for appropriation by crops. Poor land, including Vine borders (which ought not to be poor) may be injured by the too free use of lime, but rich land is improved by liberal applications if it is practically limeless. It is difficult to deal with a great subject like this in a few short paragraphs, which only represent passing thoughts, not exhaustive essays.

MR. TAYLOR will, I hope, excuse me saying that I fail to see anything in his note that satisfactorily answers my proposition of the Gros Colman Vine being so constituted as to require more water for the sustenance of its foliage than most other varieties do. I readily admit the excellence of his Grapes, also his competency in judging as to when Vines in pots need water. All his writings indicate him to be most careful in what many persons call "small details," but watering and ventilation are "great factors" in contributing to success. Putting aside the premature discolouration of the foliage of his Gros Colman, I should require to know the relative size of the Vines before attaching weight to what he says on page 67. I can very well understand a large Vine of Muscat of Alexandria requiring more water than a smaller one of Gros Colman; but I cannot understand that as much moisture evaporates from a small as from a large leaf, both being grown under the same conditions. I say that when Vine leaves turn brown and shrivel at the edges, it is in nine cases out of ten the result of moisture escaping from the leaves faster than it is supplied to them from the soil by imbibition of the roots. Moisture in the atmosphere will arrest evaporation, so will shade from the sun; and I cannot help thinking it better to adopt either one or other of the methods than to permit the foliage to fail at a critical time. I do not base my proposition on theory alone, but on actual results on a rather large scale. I repeat that strong free-growing Vines of Gros Colman require more water than most other Vines do, and this afforded (or failing it, light shade applied), the leaves will remain fresh the longer. No doubt if something good is mixed with the water it is better for the Vines; but I doubt very much if it was a lack of potash that caused the leafstalks of Mr. Taylor's Gros Colman to droop while the leaves remained rigid. It was primarily the loss of moisture, and though the effects may not have been immediately visible on the leaves they would be disclosed in a few days. The leaves and young growths of Vines contain only a mere trace of potash, carbonate of lime being by far the greater mineral agent there, amounting to 4.8300 against 1.1700, out of a total of 7.5014. However misleading may be the appearance of a man's hand as indicative of health, I do not think the above figures are very seriously misleading, and they are submitted for what they are worth.

I READ with pleasure Mr. S. Castle's notes on Vines, he appears so earnest and so honest, being apparently as ready to admit a failure as record a success. I always think of him as a man who will succeed if success can be attained by strenuous effort. Not that he stands alone in this. There are others as earnest as he is, but not many so ready to admit they have something to learn. In his last communication (page 90) Mr. Castle expressed a fear to apply potash to Vines lest it should impede the ripening of the wood. I believe it will not have that effect. It is an element in solidification, nitrogenous manures contributing to extension, and thus having a tendency, if applied late, to retard maturation. For instance: Sulphate of ammonia or nitrate of soda are excellent applied

after Grapes are stoned, for feeding the fruit, but not after colouring. The heaviest crops of Grapes I have ever seen were supported with these fertilisers. The last named is slightly the quicker in action, the former more lasting in effect. But neither should be used in the absence of a due proportion of carbonate and phosphate of lime, also potash, in the soil, or the border will not long remain satisfactorily fertile.

AS I cannot always be praising, but must have a victim by way of a change, "J. M." must be the doomed individual, or rather one of the plants he praises so highly must be taken down a degree or two, as I think it is overrated. In his notes on choice and useful Palms, on page 40, your correspondent says, "Seaforthia elegans grows in a semi-dark place, and bears confinement in entrance halls better than any plant I can name;" and further goes on to say, the Palm "above all others that deserves to be grown in quantity is Seaforthia elegans." This double-barrelled recommendation is also rather too strong in my opinion. I do not attach any particular importance to a handsome specimen of *Phœnix reclinata* that has been in a room for seven years and remains as handsome as ever; but I do think a little weight must be given to the experience of one of the best and most extensive growers of Palms in the kingdom, and who would gladly grow Seaforthias but for the fact that, as he said, "Kentias were driving them out of the market, and except as regards a few that may be wanted as tall specimens, will drive them out of the kingdom." He had at least a thousand Kentias to a dozen Seaforthias, the former of a rich deep green hue, the latter washy in comparison, and somewhat of a "thripy" appearance. For richness of colour and elegance combined with a certain massiveness, Kentias far outdistance Seaforthias. If "J. M." will try them fairly I feel certain, if he gives me a sound castigation next week for this tender allusion, that he will repent of his severity before he is five years older. I await results.

MR. PETTIGREW conveys a really useful hint on page 39 on covering the back walls of vineries attractively and usefully. If anyone had asked me what to plant in such shaded positions my reply would have been white Camellias. I know a range of Peach houses in which the fruit is grown for sale, and grown well, but the white Camellia blooms produced by plants covering the back wall exceed the Peaches in value. These are forced to be ready in June, and the treatment brings the Camellias in plentifully for Christmas; but these plants are of rather slow growth, Lemons being far quicker. I remember seeing the back wall of a lofty vinery covered with handsome Lemons years ago—so long since that I had forgotten the circumstance till reminded of it by the interesting letter on the page quoted.

THE Reading Hero Potato has been under discussion and has come out of it bravely. I am able to confirm what is said of its excellence. Grown on a medium soil, the crop was good and the quality of the tubers of the first order. The same I can with equal accuracy say of the Ashtop Fluke in reply to Mr. Murphy (page 62). The Hero may be described as a full, the others as a delicately flavoured tuber. But can your correspondent point out in what respect it differs from the old Lapstone Kidney? With me this pair are as like as two peas. Not a few old-fashioned Potato connoisseurs regard the Lapstone as unsurpassed in quality, but liable to disease. I am not positive that my Lapstones were obtained true, but I know they are good, and the Ashtop Fluke is just like them.

A SLOUGH correspondent asks if either I or anyone else can suggest a remedy for the clubbing of Broccoli plants. The absence of chalk in the soil is a primary cause of the clubbing of the roots of plants. The quantity of lime mentioned—namely, one bushel to a perch—is of little or no use in arresting the evil. Let four times the quantity be applied to a plot of ground. Puddling the roots of plants in clay alone is of small service, but a mixture of equal parts of clay, soot, and lime, dissolving a wineglassful of petroleum in a gallon of the puddle, will be found more effectual. The addition of ashes might aggravate the evil by rendering the gravelly soil more porous and drier. Lime has an opening effect on heavy land, but an opposite effect on some light soils, rendering them closer and more retentive of moisture. This is my thought on the subject. I shall be glad to hear what others may have to say on the clubbing of plants.

I AM glad rather than otherwise if I did not put the exact construction "J. T. S." intended in his article on the influence of the "virgin lands" of the far west threatening the ruin of British agriculture, because of the thoughtful yet spirited reply on page 87. I did not intend to suggest that your correspondent was frightened by foreign competition; but that many persons are in such a state of alarm that paralyzes effort is beyond a doubt. Sad it is to see this giving up and adopting a policy of despair. It is clear that "J. T. S.," whoever he is, and whatever he is engaged in, does not intend to fail, and I venture to say he will not fail if he is vouchsafed the blessing of health.

#### ADDENDA.

THE above paragraphs were written long before the last issue of the Journal was published, the comments on the following extract being penned since.

"I HAVE for some years been accustomed to review at the commencement of each year the principal points in connection with our favourite pursuit which have struck me during the past year; and although the same course has been adopted by your correspondent who signs himself



'A Thinker'—are not most of us thinkers?—yet I do not depart from my usual custom, as we do not travel on the same lines or discuss the same subjects. My task is much more commonplace, and in truth I have to deal more with a narration of facts than the discussion of questions which do not fall within my ken. I am but an 'individual' who, in a humble way, tries to bring forward some facts which, ere the year grows much older, may as well be gathered up, and not forgotten. I have written 'individual,' to which Mr. Harrison Weir objects rightly. One is reminded of the story of O'Connell, whose vocabulary of abuse was very extensive, and who undertook that he would silence one of the Dublin 'fish fags,' who were as celebrated in this way as the Billingsgate fish wives. After they had been firing away at each other for some time, and the 'Liberator' began to be in despair, he turned to his opponent and in thundering tones cried out, 'You're nothing but an individual.' This finished the battle. She succumbed, and left O'Connell victor." When I read that paragraph on page 72 I naturally thought the repeated mention of a simple English word and the extraction of it from O'Connell's "vocabulary of abuse" was a reuke directed to myself, and so did other persons, as I have ample evidence. They thought, as I did, that it was going rather beyond a joke. Still, as I was reluctant to retort hastily I sent a short paragraph, which appeared on page 85, with the sole object of affording opportunity for any explanation that "D., Deal," might care to make. This is given on page 105, and frankly accepted, as no one can know so well as the writer of the paragraph that the words did not in "any way" apply to me. I thank your correspondent, and would assure him that I can endure, even enjoy, good-humoured criticism, and I believe I have my share.

BUT this O'Connell episode is so good in its way that it ought not to be passed, and there appears to be so many versions of it that I have endeavoured to trace its origin. I really do not take the late Mr. Daniel O'Connell as my model in conduct, and I am bound to enter a gentle protest against any even seeming attempt to include the familiar and good old English word "individual" into the "vocabulary of abuse." The Dictionary gives the meaning of the offending word, and of "abuse" also, to which anyone can turn who chooses to do so. O'Connell never used the word at all in his celebrated contest with Mrs. Moriarty when she tried to sell him a walking-stick from her stall of "notions," the price of which he disputed. Then followed the war of words first recorded by Mr. D. O. Maddyn. As those on the "Liberator's" side were avowedly humorous, they can be quoted without any impropriety, and will be amusing at least to several gardeners as a relief from hard digging and dry reading. "One and sixpence for a stick that cost you twopence!" shouted the "Liberator;" "why, you're no better than an impostor." Then, in reply to the dame's hot retort, exclaimed, "Keep a civil tongue in your head, you old *diagonal*; don't be in a passion, you ancient *radius*; don't choke yourself, you *paral-lelogram*. You will deny you have an *hypothenuse* in your house next; but you can't deny the charge, you miserable *sub-multiple* of a *duplicate ratio*; you inimitable *periphery*; you convicted *perpendicular*, trembling with guilt to the extremity of your *corollaries*. You are found out, you *rectilineal antecedent* and abandoned *similitude of the bisection of a vortex*."

THERE is the celebrated "vocabulary." I do not object to be associated with the "Liberator," especially in such good company as "D., Deal." O'Connell may have been misguiding by an exuberant imagination, but he was, I think, an honest man, and for every honest man I have respect, however widely we may differ in our views and opinions. I have taken good advice on the subject of my philological assumption, and remain content. If I am aware that any individual objects to be referred to in any particular manner, I shall respect his objection, and I fail to see what more can be fairly required. "D., Deal," and myself are both engaged in the same work and with the same object. We differ in our views no doubt on some things, which is, perhaps, well, for if all thought alike and wrote alike the Journal would soon be very tame reading. We will now start afresh. There is plenty of room for all to proceed without any serious jostling in the "republic of letters."

It is very evident I have "caught a tartar" in "Utilitarian." It is pretty clear, too, he is more "advanced" than I am, and would express himself more strongly against inequalities in taxation as between trading gentlemen, who profit by their luxuries, and men who labour for the means to live, if he were not "in the business." I see he does not understand the routine of determining assessments. I wonder if he knows that according to law the ground in nurseries and market gardens is exempt from taxation? the "houses" only can be valued, not the land; but is not much of it assessed even more highly than the ground from which wealthy individuals sell produce? That is the question, and I believe that in instances innumerable nurserymen and market gardeners are flagrantly overrated. Your correspondent fails to distinguish between luxuries and necessities, hence there is no common ground for discussion. The question as to the rating of allotments is not in dispute, because they are rented on the average at the least 10 per cent. higher than agricultural land, rates included in the rent, and that is surely a sufficient answer to his question. The question of an allotment holder, or anyone else, consuming or selling his produce is perfectly immaterial. It is the "possession" of the value, not its disbursement, on which taxes are levied. If "Utilitarian" earned £500 a year, spent every penny of it in charity, and got credit for his own support, he would have to pay income tax all the same. The real question is the relative amount of assessment of

*bonâ fide* traders and private gentlemen who compete with them. So long as these enjoyed their luxuries no one begrudged them their privileges, but when they enter the lists as competitors in trade under special and advantageous circumstances, regular traders, nurserymen, and market gardeners feel they have substantial grounds for objecting. It is a question of fact, easy to be ascertained, and not of mere "logic." There is no doubt as to the duty of a gardener to render his charge in the highest degree productive. That has nothing whatever to do with the matter at issue. As to your correspondent's "free" trade professions, I doubt if he would feel himself "free" if he were "fettered" by taxes that more favoured amateur traders ought to hear.

"A. E. H." contributes a very sensible letter on the same page (107). If it be correct, and I am not in a position to dispute the statement, that grain can be conveyed at as little, if not less, cost from New York to London as from Cheshire to London, an alteration is urgently needed, and such an anomaly we will hope will not escape the attention of the Royal Commission on Trade. Still, with all our disadvantages, your correspondent says American and English producers are "nearly equal," the balance presumably being in favour of the latter. Why, then, the collapse of British agriculture? I say, if it is anything but temporary, the fault lies in inferior culture. The importation of poultry and eggs is a puzzle, and the fact of £10,000 a day being sent from this country for the needed supply is no credit to British farmers.

"A WISHER FOR FAIR PLAY" writes like a farmer, and, farmer like, appears to fancy a gardener is out of his element in alluding to the ancient craft of hushandry. Of course "rents must fall and wages come down;" that is the farmers' remedy. Well, they have come down, in not a few instances quite low enough in my opinion. Will "A Wisher of Fair Play" say why the rents of labourers' cottages should not "come down," since wages have been reduced 20 per cent.? If it is right for those rents to be rigid, why should the rents of farms glide away to nothing? Let us have "fair play" all round if possible. Perhaps as time goes on your correspondent will find I have been "one year" in a farmhouse. I am in a position to say there is no work on a farm that I have not done, and if my eye and hand have not got feeble, I think I could drive a plough the "nearest way across a field" yet. As a farmer, your correspondent will know what that means. Then we are to give up growing Apples in this country because of the bad "climate." Was "Wisher," &c., at the International Apple Show at the Crystal Palace a few years ago, where the best American samples were staged with the English? Taking them hulk for hulk, the English would have realised more money than the American if both had been sold by auction "on the premises." It is selection and culture that win, not "climate" alone. The orchards of England are, as a rule, in a deplorable state and produce tons of trash. And Covent Garden is not the market for fruit grown a hundred miles north of King's Cross. There is too much sending to "Covent Garden." I do not believe in Covent Garden for northern produce, which should go further north still, even to St. Petersburg. There is as much reason in sending coals from Wales to Newcastle as sending Apples from Yorkshire to "Covent Garden." I am asked if I have ever known Wheat below 28s. a quarter. I have never known good Wheat so low as that, but I can remember when the average prices of farm produce all round were lower than they are now, even at Boston. By the way, I was once at Boston. It is years ago, and I daresay if your correspondent were to guess for a week what I was doing there he would not guess correctly. Shall I tell him? Yes, I will, just for the novelty of the thing. Don't laugh. I was sent for a good many miles to take the "bass" in a grand concert—basses are mostly rough—and if he has an old file of newspapers he will find my name in the report, but not in the form now appended.—A THINKER.

## THE TULIP TREE.

LIRIODENDRON TULIPIFERA is the name by which this is known in books and catalogues, but the Tulip Tree is the appellation by which it is best known to most people. We have three large specimens of it here and six smaller ones. The largest is 95 feet in height, bushy, and a noble tree. At present they are all leafless and unattractive, but in June and July, when richly clothed in their shining green artistically formed leaves, and thickly dotted with thousands of their curious Tulip-like blossoms, they outdistanced every tree in the garden in interest and beauty. When not in bloom the tree may well be classed amongst "beautiful-leaved" plants, but the flowers are very attractive. In form or outline they resemble huge Tulips, and the exterior is almost of the same shade as the foliage, but the interior is of a creamy colour and of curious formation, so much so, indeed, that they do not require the company of any other flower to increase the attractions of a hand or dish full.

The tree is hardy and will grow in any soil or situation. Some young ones planted seven years ago without any special preparation have now assumed large proportions, and I am sure if all who are interested in good trees would introduce one or more of these before this planting season comes to an end they would soon have cause to feel thoroughly satisfied with their work. Being deciduous, they ought to be planted before coming into leaf, and of the two sorts of trees—viz., standard and dwarf, I think the standard is the most handsome. In planting it is an advantage to use good soil where it can be conveniently obtained, and each tree should be firmly staked as soon as planted. In dealing with such a tree as this it



would be a pity to place it amongst other trees and shrubs, as it is in every way suitable to figure as an isolated specimen on the lawn.—J. MUIR, *Margam, S. Wales.*

### RENOVATING VINES.

VINE culture is an important subject, as the articles, letters, and contributions to your Journal testify, and this induces me to give my latest experience upon some matters connected with it.

I have been in trouble with my Vines, and perplexed as to the reason of the deficiency or failure in foliage and colour, but I am now convinced that in my case exhaustion of the soil, or, in other words, starvation, was the sole cause. I had a house of Mnscats which in 1884 were in such a deplorable condition that I was upon the point of grubbing them up and planting young Vines, when one of my friends recommended me before doing so to use some of Jensen's fish potash manure. I did so, applying a quarter of a pound to a peck of soil to the square yard, giving the border a good watering. To my satisfaction the result completely confirmed all that Ville, the French agriculturist, asserts as to the efficacy of a normal or complete manure. The Vines last year, 1885, were the picture of health, and finished a splendid crop of fruit, the borders at the present time being a complete network of roots.

I have also used this manure for kitchen garden crops with gratifying success. When I examined the analysis the reason is not far to seek, for the fish contains ammonia in the flesh, phosphate of lime in the bone, and with the potash salts forms a complete fertiliser. I would strongly recommend anyone who has Vines in an unsatisfactory condition to give Jensen's Norwegian fish manure a trial, it is very powerful, and in general work but little is required.—J. G., *Draycot Gardens.*

### CULTURE OF BROWALLIA ELATA.

THIS favourite perennial should be grown by everyone having a conservatory, greenhouse, or stove to embellish during the winter and spring months. If necessary it may be had in flower all the year by sowing a pinch of seed in February and again early in August; but it is as a winter and spring-flowering plant that it is most deserving of culture, because it is during those months that the plants, which are of branching habit, are most prized for decorative purposes. The blue Phlox-like flowers, which proceed freely from the tops of the side shoots, are then of the brightest hue, and contrast effectively when associated with flowering plants of light and bright shades of colour. A stock of this beautiful and very easily managed plant can readily be raised from seed sown in 4-inch pots previously crocked and filled to the rim with a light compost consisting of three parts of sandy loam and one of leaf mould. Cover the seeds lightly with some fine soil, then put the pots in heat and cover them with a square or two of glass and a little moss, which must be removed as soon as the seedlings appear through the soil. From this time the seedlings should be gradually inured to light and air to prevent them from making a weakly growth, and with this object in view the plants should be grown on shelves near the glass. A board resting on a few flower pots on bricks in an early Melon or Cucumber frame would be a most suitable place in which to grow the plants in their earlier stages, protecting them from the ravages of slugs by dusting a mixture of fresh soot and quicklime along the board on each side of the plants.

Three plants in a pot will be sufficient, and the superfluous ones should be pulled out before they become crowded, and be transplanted in 4-inch pots if necessary to increase the number of plants. The latter should have a small stick about 18 inches long put to each plant for support, and be kept well supplied with water at the roots, and damped overhead with tepid water on bright mornings and afternoons, as much with a view to promoting a healthy growth in the plants as to prevent the attacks of red spider. If larger plants are desired a portion of the stock should be shifted into 6 or 8-inch pots; and those in the 4-inch ones, which I find large enough for all ordinary purposes, should be top-dressed with a mixture of pulverised horse-droppings and loam when the plants attain a height of 10 or 12 inches. This will enable them to develop finer heads of flower than would otherwise be secured.—H. W. W.

### SOWING PEAS EARLY.

I SEE in the Journal, February 4th, page 84, your correspondent, "Kitchener," says he doubts very much if the Peas I have named, with the exception of one, would succeed if sown before the first week in April. If I did not sow the Peas named before the first week in April my chance of success at the Royal Horticultural Society's Show at South Kensington, varying from the 1st to the 14th July in each year, would be small. The dish of Wordsley Wonder Peas that I won first prize with last year on the 14th July at South Kensington was from seed sown the first week in January, also the dish of House's Perfect Marrow that I gained a similar prize with was sown at the same time, and they are both wrinkled Peas. I would also say to "Kitchener" and others, If your land be rich and well drained sow Peas, either wrinkled or round, as soon as possible in January

or February, and you will not miss having a crop more than once in ten years.

"Kitchener" makes a mistake when he says eight pints of the Peas that I have named would cost 5s. per pint or 40s. the collection, for the whole ten pints would cost 19s. 4½d., and I consider that taking the quality of the Peas the price is not so extravagant as "Kitchener" would lead us, your readers, to believe.

I was pleased to see the remarks of your correspondent, "Lathyrus," February 11th, page 109, as he practically hears me out in the remarks that I have made regarding early sowing.—HENRY MARRIOTT.

### NEW v. OLD VARIETIES.

MR. MOLYNEUX'S sound advice on page 84 tempts me to offer a few remarks on the above subject. It is not alone in Chrysanthemums that old varieties are superior to many new ones, but in vegetable and other seeds. When entering on my present charge my difficulty, like many other young men's, would have been the first seed order, but, fortunately for me, my father is a gardener, and his advice on marking the order sheet was, Leave the novelties alone. I can get Peas from 1s. to 1s. 6d. per quart that yield produce of good quality as long as Peas are obtainable, and I should not be studying my master's interest if I bought Peas at 5s. per quart that may prove worse on the dinner table.

I tried a new Beet last year, but it was not so good as Dell's Crimson, of which I get four times the seed for the money; this year Dell's only will be grown. I do not grow many varieties of anything. Brussels Sprouts are represented by Aigburth only, Cauliflowers by Early London and Veitch's Autumn Giant, Tomatoes by Hathaway's Excelsior, and Turnips by White Stone and Chirk Castle. I possess good varieties of Cabbage, Celery, Lettuce, and Onions, and save my own seed. Like Mr. Iggulden, I shall buy no more Melon seed. I have bought seed labelled Read's Scarlet Flesh that produced three kinds of fruit, none very good. For the future I shall grow only a seedling of my own. I would have enclosed my seed order for publication in the hope of helping some perplexed youngster, but it seems such a modest affair I am almost ashamed of it.—A. L. G.

### HIBISCUSES.

WHEREVER it is desired to increase the collection of flowering plants in the stove a few plants of the numerous forms of Hibiscus should be obtained. The flowers of most of the single varieties are somewhat fugitive, and in the case of *H. Rosa-sinensis* they are extremely so; but to compensate for their brief period of beauty they are produced successively for a considerable time. They are also welcome for their brilliant hues, as in most stoves there is too great a preponderance of foliage and insufficient brightly coloured flowers to render them attractive. The conservatory is commonly far more beautifully furnished in this respect, although the deficiency in the warmer structure is more due to want of selection than to an insufficiency of plants suitable for the purpose. Fine-foliage plants have had a large share of popular favour, but they are now losing their high position, and the demand for flowering plants is proportionately increasing. In consequence, any additions that can be named are welcome, and amongst these must be counted the Hibiscuses.

The genus is a large one, and comprises species of very diverse habit. We have groups of both hardy and stove annuals, then a group of hardy herbaceous perennials, including the deciduous shrub *H. syriacus*, which, with its many coloured varieties, is a common occupant of town gardens. A few also of shrubby habit, but evergreen, are obtained from Australia, and require a greenhouse temperature, while larger numbers are from the tropics in various parts of the world, and have to be grown in the stove. It is to the latter that reference is now specially made, and as their culture is simple it can be summed up in a few words. Most of them are free and quick growers, at least all those of the *H. Rosa-sinensis* section, and require an open compost of light turfy loam, leaf soil, and sand, in the proportion of two-thirds of the first to one-third of the two last named. Then if the plant requires any additional support, it can be afforded in the shape of liquid manure at the time of flowering. The pretty variegated *H. Cooperi* is too seldom seen in vigorous health, and it needs a lighter compost than that described for the other forms, substituting peat for the leaf soil and using sand freely. Very old plants of this are also liable to become what is termed "scrubby"—that is, producing rough bare stems with a few leaves at the points only, and it is then very unsatisfactory it is preferable to grow on a few young plants as stock to succeed the others. The same remarks apply to the flowering Hibiscuses of the *Rosa-sinensis* type, although by hard pruning these can be more readily furnished with fresh growth. All these are easily increased by cuttings inserted in sandy soil in heat. To insure the production of compact specimens the shoots of the young plants will need stopping several times until they are well branched and bushy. They flower in a small state, but it is not until specimens 2 or 3 feet in diameter are obtained that they are really seen in their best condition.

*Hibiscus Rosa-sinensis* is an old inhabitant of British gardens, for it was known to and cultivated by Miller in the last century, as early as 1731. The single form was that first grown, and though not quite so brilliant as some of the varieties that have been subsequently obtained, its flowers were of a fine rich red colour. One of the old writers—Rumphius—gave a full account of this and the double form, together with a figure of the latter, which he stated was more generally grown both in China and India than the single variety. He also remarks upon the fondness of



the inhabitants of India for red-coloured flowers and refers to a peculiar and very unæsthetic use to which the flowers are applied—namely, for blacking boots. They are rubbed on the leather, which is then polished with the hand. In this country we are content to employ them for floral decorations alone. Innumerable varieties have been raised or introduced differing in hue, from the most brilliant red to yellow flesh colour or nearly white, and the majority have received high-sounding names, such as “brilliantissima,” “magnifica,” &c., while of doubles we have red yellow, and striped varieties, all attractive and lasting longer than the singles. Colleri and Baptisti are two handsome named varieties of the double type, but several others can be found in nurserymen’s lists.

A pretty companion for the bright-coloured *H. Rosa-sinensis* varieties

most striking appearance, and attract great attention. Owing to the margin of the corolla being so deeply and irregularly divided, the flowers are most remarkable, and seem almost feathery in their lightness.

Many more could be named, such as the changeable *H. mutabilis*, the lilac *H. lilacinus*, the purple *H. phoeniceus*, and others, but those mentioned will suffice for ordinary collections.—L.

#### THE BEST MELONS.

UNDER this heading appeared an article in the Journal of the 4th inst. from a well known correspondent, but it seems to me difficult to tell which is the best of the many varieties there are at present in commerce.



FIG. 22.—HIBISCUS DENNISONI.

is *H. Dennisoni* (fig. 22), distinct in foliage and flowers. The leaves have been compared to Ivy, and they have a rounded form suggestive of the variety known as the “Irish Ivy.” The flowers are large and funnel-shaped, of a creamy white colour, light and delicate, contrasting well with the red flowers of the species previously named. With ordinary attention in cultivation, such as that already advised, plants of neat compact habit can be had in pots of moderate size, and it flowers very freely when quite small.

As a beautiful curiosity *H. schizopetalus* ought to be widely grown; the drooping flowers with their orange scarlet deeply cut petals have a

In a catalogue before me now forty varieties are offered, and I will venture to say that there is not one gardener in fifty who has room or conveniences for growing half of these roots. Raising new Melons seems quite a hobby with some people, but I think while we have so many good varieties this business might be abandoned, as many that are raised and certificated are soon lost sight of. In the garden where I received my first eight years’ experience Melons were grown on a large scale, and for a mid-season crop a lean-to house 60-feet long was annually planted with about a dozen sorts, and we ripened between seventy and eighty fruits, yet out of that dozen, though all were good a few years ago, only



three or four varieties can be obtained now. I should like to see the number reduced to about a dozen, four of each, Scarlet, White, and Green-fleshed. I grow four varieties, and find these sufficient. Hero of Lockinge is not a favourite with me; it has a very thick skin, and consequently more waste, which is not the case with some other varieties equally as good.—FAIRPLAY.

### BELVEDERE HOUSE, WIMBLEDON.

To Surrey Chrysanthemum growers the residence of A. Schlusser, Esq., is well known, as the beautiful specimen Pompons annually produced by Mr. Lynes have gained considerable fame in the district. The garden is also noteworthy in another and more important respect—namely, that though Wimbledon abounds in well kept establishments this one merits a place amongst the best for all-round neatness and good practical work. It is unpretentious, but those who appreciate good gardening can see much to please them in the manner small details are executed.

The glass houses are not very numerous, but their occupants all show that they receive careful attention. One feature is the Roses in pots, of which a good number is grown, and they are now under cover in preparation for their early flowering. The plants are healthy and are breaking regularly, the buds looking strong and very promising. The plants are repotted every year into good loam, they are allowed plenty of root space, and are supplied as occasion demands with liquid manure. A good collection of varieties, both Teas and Noisettes, is grown, and a valuable supply of buds and blooms they yield for a considerable time. In a house where there are two old Fig trees the utility of Roses for flower-yielding is, however, especially well illustrated. The Fig trees, both Brown Turkey, are planted out in a border in the centre of the house, and at the ends are planted Maréchal Niel and Reine Marie Henriette, the Red Gloire de Dijon. These extend to the centre of the house, covering the lower part of the roof, and afford blooms by hundreds through the early summer. The effect is also pleasing, the fine clear yellow of the Maréchal Niel contrasting with the red or pinkish Reine Marie Henriette, and for all kinds of floral decorations they are highly esteemed. Everyone knows the value of Maréchal Niel, but its companion is not so frequently grown in houses. Mr. Lynes, however, speaks very highly of its qualities, and recommends it strongly for the purpose to which he applies it. This house, though of moderate size and slightly heated, is an extremely useful one, as the Figs yield enormous supplies of fine fruit that ripen well.

A handsome span-roofed house in two divisions, erected a year or so since, is now chiefly occupied with Orchids in one division and with Ferns, Crotons, and other stove plants in the other. The house is spacious, lofty, and light, well adapted for the culture of plants, as can be seen from the way these thrive. The Orchids especially are very healthy, and small plants obtained eighteen months or two years ago have made wonderful progress. An example of *Dendrobium Ainsworthii*, a particularly fine variety, had when received only three small pseudo-bulbs, and now has eighteen, the majority strong and bearing abundance of flower buds. *D. crassinode* has three stout pseudo-bulbs in a 6-inch basket, and bears a total of forty-four flowers large and richly coloured. *Laelia purpurata* is represented by some strong specimens and good varieties. Several good Cattleyas and other Orchids are also grown in this house, the white and orange-coloured *Dendrobium infundibulum* flowering well. In another house is suspended a specimen of *D. Wardianum*, with growths over 4 feet long, and which has borne flowers 6 inches in diameter. A small cool house is devoted to *Odontoglossums*, all of which look well, but the pretty *O. Sanderianum* is the only one in flower now, though *O. Rossi majus* and several others are fast advancing.

In other houses are plentiful stores of useful plants for table decoration and similar purposes, *Dracenas*, *Crotons*, *Aralias*, *Palms*, &c., of moderate size being chiefly employed in this way. *Pelargoniums* are numerous, many of the best varieties being included; *Azaleas* have a good space devoted to them. *Eucharises* and *Amaryllises* form other attractions, though, unfortunately, Mr. Lynes has had to contend with a troublesome pest, the so-called *Eucharis mite*. Soaking the bulbs in a strong solution of Fir tree oil or the Gishurst compound for twenty-four hours has been found to be an effectual remedy, for bulbs so treated are recovering their usual health and making strong growth. The Peaches and Nectarines are opening their flower buds well in the early house, but the weather has been very unfavourable to them.—V.

### SOME SINGLE ROSES AS DECORATIVE PLANTS.

[An article by Mr. T. W. Girdlestone in the "Rosarian's Year Book."]

SINGLE Dahlias! Single Chrysanthemums! And now (oh, ye florists) single Roses! Well, why not? Nothing is perfect in this world, and we must have regard to a general law of compensation in the selection of the moribund. Single Roses are so fleeting?—true, the individual flowers are; but look how each shattered blossom is replaced by a score of others, until profusion stands declared to compensate the want of endurance. These singles are no good for cut flowers or exhibition?—so much the better for the garden, which will thus be all the more attractive to get and keep people out of the house, while the making of a permanent garden at all times attractive is of far more importance than the decoration of any tent for a few hours; and at the same time it must be remembered that Hybrid Perpetuals only last a day during July. And then, single Roses do not flower in the autumn?—apart from the fact that this is not in all cases true, no more do about half the so-called "Perpetuals," over which the singles have this advantage, that they are as gay in the autumn with hedges as they were in the summer with flowers; some bearing fruits large and

deep-coloured, some small and brilliant, some in bunches as big as rowans. And then, again, how good-natured they are, making themselves at home in soils and situations and with a small amount of attention, that many double Roses would die rather than put up with, and at the same time scorning the notion of mildew and green fly and such-like fashionable complaints. But argument is always useless; for those who only grow what is in vogue, or whose horticultural love is circumscribed and centred in that showy Miss First Prize, will not grow anything that is not prescribed by their leaders of fashion, nor conducive to the winning of their mistress; while those whose large hearts (and gardens, since it must be admitted that for very small gardens the most vigorous of the single Roses are not well adapted) have room for all that is beautiful will need no persuasion.

It only remains, therefore, to enumerate the most beautiful and best adapted for general cultivation of those single Roses which I have grown in case others may possibly not have come across some of them, and to give the mockers something definite to mock at; since general mockery is too easy to be entertaining, and we are told that as much entertainment as possible ought to be obtained from every "single thing."

Of all the plants in the garden this year I think that which was individually the object of the greatest admiration for the longest time was a Rose, whose single flower is no larger than one's thumb-nail, namely *Rosa polyantha* (= *Luciae*), one of the Multiflora (II.). (The Roman numerals refer to the groups as arranged in Mr. Baker's Synopsis of Roses, recently published in the horticultural periodicals). This plant covers a split-larch fence 12 feet high and 18 feet wide, and would readily have covered twice that area, as it grows with great vigour; in fact, rather than waste time over any one-sided arrangement it has penetrated interstices of the saplings, and already clothes the fence on both sides. Although the individual flowers are so small their petals are of the purest white, set off by the close bright yellow stamens, and they are delightfully fragrant; whilst they are produced in such immense clusters as to make the tree appear literally snow-wreathed. Gratitude, if that be really the concise term for a keen sense of favours to come, ought to be an additional inducement to the cultivation of this charming plant, since from accidental crosses through the bees' agency of this Rose and various Tea-scented sorts in the Lyons Rose gardens, have sprung those pretty and truly ever-flowering miniature Roses, the Polyanthas of catalogues, such as *Mignonette*, *Ma Paquerette*, *Perle d'Or*, &c.

*R. Brunonii* (II.) is another very pretty Rose growing with great vigour and making a good climber, producing bunches of white flowers somewhat similar to *R. Moschata*, the single Musk Rose, but more ornamental.

*R. setigera* (II.) (= *rubifolia*—a name which Mr. Baker does well to discard, as it gets much confused with *ruhrifolia*, a very different Rose) is the Prairie Rose of North America and the parent of the "Gem," "Queen," "Beauty," and several other apocryphal things "of the Prairie," and is worth growing if only for the beautiful autumn colouring of its foliage. For its leaves are like those of the Bramble, not only in appearance, but also in the varied tints they assume towards the end of the year. The British representative of this group (II.) *R. Repens* (= *arvensis*), is the most beautiful of all our native Roses, and, if it only came from Peru or Siberia instead of neighbouring commons and hedgerows, it would probably be grown and admired as it deserves to be. But in spite of its being "only a wild flower," it should be remembered that it probably helped to originate the Ayreshires, and a place should be found for it in the wild garden, where it can grow as it likes; not trained up anything, for it is one of the few creeping as opposed to climbing Roses, but left entirely alone, when it will soon make a great mound of graceful slender growths to be hidden in June under a canopy of pure white flowers.

(To be continued.)

### ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 9TH.

SCIENTIFIC COMMITTEE.—Dr. M. T. Masters in the chair.

*Geoglossum* (?).—Prof. Boulger exhibited a specimen for determination of the name.

*Camellias and the Frost*.—The Hon. and Rev. Boscawen exhibited sprays of plants grown in the open, and which had been subjected to 10° or more of frost, in which the second and third year's leaves were browned, but last year's were perfectly green and untouched. The same fact had been often before noticed at Lamorran, and at Pentilly—a much milder locality than the former. The cause was presumed to be the relatively lessened vitality of the older leaves, though normally they remain on from three to four years. Dr. Lowe alluded to an instance of a plant (a single-flowered kind) which had been much injured in transit, and was planted early in the summer. It threw out foliage which has stood all the frost of the present winter. Dr. Masters alluded to the fact that some young Lime trees transplanted last autumn, and which had shed their leaves, threw out fresh ones, which likewise had withstood the frost. Both these facts, therefore, would seem to corroborate the view that the vitality of the young foliage was so strong as to resist the effects of the late frost, to which the older leaves of two years had succumbed.

*Peach Wood Injured*.—Mr. Wilson exhibited a specimen of wood in which the dissolution had occurred between certain years' growths, similar to the so-called "shaky timber."

*Catantop tabulare*.—Mr. O'Brien exhibited a blossom of this flower, remarkable for its resemblance to the opened mouth of a snake, the two "antennae" resembling the fangs, while a thick tongue-like elevation occurred down the middle of the labellum.

*Phalenopsis Stuartiana*.—He exhibited a spray of this variety raised by Major Leudy, to show the permanency of the peculiarity of the petals, commencing to assume the characters of the labellum in bearing a similar, though much reduced process on the centre, and by being more or less spotted instead of pure white, as in the original form.

*Aspidium fulcatum*.—He showed fronds of this species, raised from spores of a sport, with a yellowish-green tint, and which had preserved this peculiarity. It was raised by Mr. Naylor of Roxeth.

*Euonymus japonicus with Cocco*.—Mr. MacLachlan exhibited leaves attacked by and covered with minute white cases of *Chionaspis Euonymi*.



It is said to prove very destructive at Montpellier and elsewhere in South Europe. The majority of cases were of males; very few of those of females being present amongst them.

*Haricot Attacked by Aleurodes.*—He also showed leaves of this plant badly attacked, and which was said to almost threaten the extinction of the Haricot abroad. We have one species on the Cabbage and one on Abutilons in England. The best remedy, he thought, would be Pyrethrum powder thrown on the under side of the leaf, which alone appeared to be attacked.

*Leaves and Dew.*—Mr. Smee read an interesting communication on some observations he had made during nineteen days upon the relative amount of dew deposited on leaves of different plants last summer. He observed the Quince, Syringa, Brussels Sprouts, Peach, Rose, Mulberry, Evening Primrose, and Dahlia, at seven in the evening and again at nine in the morning. It appeared that the leaves of the Quince and Mulberry are always the last to be coated with dew, and are never very wet at any time. Dahlias and Brussels Sprouts become coated with dew sooner than any other plants; while in the former, drops of dew hang from the points of every leaf. The leaves of the Peach, Rose, and Evening Primrose are never so wet as those of the Dahlia, but always had more moisture deposited on them than had those of the Quince and Mulberry. Mr. Smee also exhibited a table giving



Fig. 23.—The "Darlington" Glass Wall-cover.

the atmospheric conditions in his garden on the days of his observations. The plants were all similarly situated as to exposure, and were, as far as practicable, growing in close proximity to one another.

*Colletia bictoniensis* on *C. spinosa*.—Mr. Burbridge sent a specimen of this dimorphic species, now well known to exhibit this peculiarity. *C. bictoniensis* was first raised from seed of *C. spinosa* by Mr. Barnes of Bicton; the dimorphic sport first came from Italy twelve years ago, but has often occurred since then.

*Banksia australis* Raised from Seed.—Mr. Henslow exhibited the flowering spike from a plant raised from seed which had been kept twenty years. The plant was at present about 3 feet high.

*Plants Exhibited.*—Mr. T. Lynch brought five specimens of *Juncus acutus*. It was remarked that butterflies occasionally impale themselves on the sharp points of the erect leaves. He also showed sprays of the uncommon scarlet *Salvia boliviana*, *Acacia cyclops*, remarkable for the long scarlet funicle which is wrapped round the seed; this ultimately uncoils, and the seed is thereby suspended out of the legume. It was suggested that this might tend to mature the seed in the sun, or to attract birds. *Euphorbia punicea*, with leaves gradually passing into coloured bracts, as in *Poinsettia*, *Acacia platypleura*, with remarkably pale-coloured yellow flowers.

### THE "DARLINGTON" GLASS WALL-COVER.

GLAZED coverings for walls are so valuable for the protection of fruit blossom and accelerating the ripening of fruit, also for growing Tomatoes under, and sheltering Chrysanthemums in the autumn, that they might with advantage be much more extensively used than at present. The particular "cover" referred to is quite new, having been designed by the well-known firm of horticultural builders, Messrs. W. Richardson & Co., Darlington, "with the view," as they say in the prospectus, "to supplying a glass house for growing Peaches and other wall fruit at a price which brings it within the reach of all. The 'Darlington' wall cover is cheaper than anything of the kind that has ever been offered to the public, and, at the same time, thoroughly strong, well made, and durable. It is also portable in the fullest sense of the word, the entire front (which is composed of sashes), the ends and top glass being made so as to lift off with the greatest ease and rapidity. They can be as easily replaced, and every alternate light will then, if desired, slide (on runners) behind its neighbour, so as to give thorough ventilation. A

portable wood front, with cast-iron standards, as shown in the above section, can be supplied at the extra cost named in the price list, no brick-work whatever being required except the back wall. The 'Darlington' wall-covers are carefully put together at the works before being despatched, each part being numbered, so that they can be fixed at their destination without the least difficulty. Full instructions for doing this are sent with each length."

### CYCLAMENS AND PRIMULAS AT READING.

A RECENT visit to Messrs. Sutton & Sons' Portland Road Nurseries revealed a marvellous display of the above-named useful decorative flowers. This place is made a special "manufactory" of choice florists' flowers, and an inspection of these therefore is always highly interesting. "Specialities," which are grown in the best possible manner, so as to secure the finest development, so that the merits of all new claimants to honours are fairly tested. The Cyclamens form a beautiful display, the plants healthy and freely flowered. It is well known that the firm have given careful attention to these increasingly popular and beautiful plants so valuable at this period of the year, one of the objects aimed at being to secure a good habit in the plant in addition to finely formed flowers, and in this laudable endeavour they have admirably succeeded, as the plants under notice amply testified. The habit is dwarf and "stocky," setting off to additional advantage the tall furnished heads of bloom thrown up above the foliage. The plants are grown on the rapid system of cultivation, those in flower being about fifteen months old. It says much for the treatment that produces such grand results. It may prove of interest to put on record the names with brief descriptions of a few improved varieties noted, and the list may be well started with White Butterfly, aptly named, a snowy white flower, undoubtedly one of the purest white-flowered Cyclamens yet raised. It is compact in habit with beautifully marbled foliage; the flowers broad, rounded, not pointed as in some varieties, are produced freely, and are remarkable for great substance and good form. A sterling variety, Album, is a good pure white; the petals more pointed than in the preceding variety. Roseum album, white, with a red base. Phoenix, intense fiery crimson. Roseum, pretty shades of carmine and rose. Ruhum, a fine deep red flower. A pure purple-coloured Cyclamen has yet to be raised, but Messrs. Sutton are "on the way" to attaining this much-desired novelty.

Amongst the giganteum forms, a magnificent strain, with flowers of extraordinary size and great substance, leaves large and very beautifully marbled with silver grey, may be mentioned the following good sorts:—Roseum superhum, colour unique, a bright rosy pink. Album, flowers very large and pure white. Roseum album; the flowers of this variety are almost as large as those previously named, but differ in colour, the base being deep rose, and the upper part of the petals pure white. As showing the extraordinary floriferousness of these Cyclamens, it may be noted that one plant will produce, from the beginning to the end of its flowering, from 200 to 300 flowers, and they last three weeks in a cut state—valuable qualities to be turned to account by the decorative florist.

The Chinese Primroses alone make a beautiful display—a feast of flowers! A grandly grown collection was on view of Reading Blue. This is the deepest of the blue-flower Primulas yet introduced. It is compact in habit, with large flowers, which are produced in abundance and thrown well above the foliage. A suitable companion to this is to be found in the Double Blue, a useful flower, particularly for cut purposes. Pearl, a white variety with finely fringed flowers, habit good, flowers produced abundantly, standing in quite a pyramid above the healthy foliage, and rendering it very distinct. Ruby King, deep blood red, remarkably compact in habit. New Giant Lilac, a novel variety of exceedingly robust habit, and with large attractive lilac-coloured flowers; an acquisition. Amongst Fern-leaved varieties, a class valuable for table decoration on account of their beautiful foliage, we were especially struck with Gipsy Queen, the nearly white flowers being well shown up by the rich dark foliage. Snowdrift, pure white, a model in all that constitutes a good Primula; habit, foliage, and profusion of flowers being all that the most fastidious could desire. Rosy Queen, colour a delicate salmon-rose; habit compact; a beautiful variety, especially adapted for table work, some plants in 72 and 60-size pots being little pictures that would cause a pretty effect dotted here and there. It is surprising that such young plants should bear such heads of bloom, nor were they deficient in leafage.

How valuable, particularly at this dull season of the year, are the double-flowered varieties of Primulas, their rosettes of flowers coming in so useful for bouquets, sprays, and table decoration. The single-flowered varieties, though beautiful, are rather fugitive when used for the purposes named. How free, too, in the matter of flowering! Some we noticed 20 inches in diameter and the same in height covered with blooms. Some of the most striking amongst them may be noted. New Double Scarlet, the brightest double scarlet Primula yet seen, robust in habit, and very free flowering; its brilliant colour is seen to great advantage by artificial light, therefore is invaluable for table decoration. New Double Rose, beautiful soft salmon rose colour, flowers thrown well above the foliage; a charming variety. Amongst the double Messrs. Sutton have raised what are designated Special Hybrids. By carefully hybridising many of the finest varieties, a choice strain of double and semi-double flowers has been obtained, foremost amongst them being Double White, pure white, double and semi-double flowers, very useful for cutting. Red, brilliant



magenta red. Carmine, rich carmine. Lilac, a pleasing contrast to the other double-flowered varieties. Amongst Primulas not yet sent out may be mentioned a beautiful pink-flowered variety, as yet unnamed, but well worthy of this distinction, which it will undoubtedly get, after undergoing the necessary probation, all varieties put into commerce having to come up to certain standards of excellence. Another, having a perfect ring of pink colour to its beautifully Picotee-edged flowers, a novelty; and yet another good thing in the shape of a beautiful orange scarlet flower approaching magenta, its orange centre rendering it very conspicuous and striking. A dense Parsley-leaved variety was also very noticeable, its double lilac-coloured mottled flowers being quite an attraction, well set off by the peculiar bronze foliage. If for no other purpose, these Primulas appear to be well worth attention and cultivation for their characteristic foliage, which renders them very distinct.

In passing, we noticed some good Cinerarias and Calceolarias that will constitute important features later on. Next to attract attention were some finely ripened tubers of Begonias just twelve months old. These are a speciality at Reading, as also are the Gloxinias and Amaryllises, which are now, like the Begonias, in a resting stage, but from their present plump and sound appearance they give promise of a bountiful harvest of bloom in the future. We cannot refer in detail to the pits outside full of Picotees and Carnations, the useful showy hardy Primula japonica and other types, some of which we may hope will be seen at the forthcoming Primula Conference, Lobelia cardinalis, Anemones, Tritomas, the beautiful Schizostylis coccinea, Geums, herbaceous plants, &c., all at present in comfortable quarters, awaiting their removal to beds prepared for their annual reception. —B.



#### KITCHEN GARDEN.

**ONIONS.**—Autumn-sown plants which have been disturbed by the frost should have attention. When the surface of the ground is open and soft sprinkle a little soot all over the plants and then tread the soil round them firmly. This will induce them to make strong short new roots, and in a fortnight or three weeks they will be in excellent condition for transplanting. It is yet too early to think of sowing the main crop of spring Onions, but a small quantity of seed may be sown for early use. The Queen variety grows fast, and if sown now would have formed good bulbs by June. White Spanish is the next quickest. Select a sunny spot where the soil is light for the present sowing. We have tried to get exhibition "spring Onions" by sowing at this time or in January, but the young plants were so severely checked in March that we found early sowing in the open no advantage. Under glass, however, young plants may be brought on freely, and if a few old boxes are filled with rich soil and the seed sown thinly broadcast on the surface, capital plants may be secured for placing out about the first week in April. The seed will germinate in a temperature of 65°, and as the plants grow they should be gradually withdrawn from the heat until they are in a cold frame. We have to-day sown a dozen boxes full of Onion seed, the varieties being Giant Zittau, Cranston's Excelsior, and seed we had from a friend in Spain, selected from handsome bulbs 2½ lbs. in weight. There is nothing like plenty of sun for Onions.

**PARSNIPS.**—Where large roots of these are wanted by August or September the seed should be sown now. The Student is the finest in quality, but Carter's Maltese is much larger, and where fine roots are wanted for exhibition the latter should be sown. The soil for them should be 2 feet deep at least, and it should be very friable and free from large stones, clay, or rough manure. Soil which is heavy or too stiff for them may be lightened and made suitable by digging a quantity of sand or ashes into it. The rows must be from 20 inches to 2 feet apart, and the seed be sown very thinly, as ultimately the plants will be thinned to 1 foot apart. These distances apply more particularly to the production of large roots for exhibition, but where the Student is grown for kitchen use only 15 inches between the seed rows will be sufficient.

**LETTUCE.**—Where seed was sown in the autumn and the plants were dibbled in close together in a sheltered place in November they ought to have kept very well, and will now be healthy little plants. Each one of them can be lifted with a ball of soil attached to the roots and be replanted 10 inches apart in good soil and in a very sheltered position. We put our plants out along the bottom of a wall, and they invariably do well. A little seed of the Early Paris Market or some other early variety should be sown now. This, too, must be put in a warm corner, and in light sandy soil if possible. Lettuces in April and May are as much valued as at any other time in the whole year, and to secure a good supply then is deserving of a little attention at present.

**POTATOES.**—Those in frames and under glass in various positions are growing freely, and the secret of having the stems and leaves robust and the produce good and plentiful, is to grow them in the full light and admit fresh air to them on all favourable occasions. During frosty nights

it may be necessary to cover them with mats or straw, but this should never remain on in the morning later than is necessary, and although some might think they are forcing them by keeping the light close, when the sun is shining this only weakens them. Some early tubers may now be planted in the open ground. We always plant our first Potatoes out of doors along the bottom of a Plum and Peach wall. When the Potato growths are coming through the soil in March the trees are being protected with netting or something of this sort, and the Potatoes also benefit by this to such an extent that they require no other protection, and it is very gratifying to observe how well they succeed under these conditions. The sets are put in about 18 inches apart, and some good material in the form of old Mushroom bed manure, leaf soil, &c., is given them as for a first crop, and to secure the best results it is impossible to be too kind to them. Frame Potatoes are very well, but we never look on them as a profitable crop, and in quality they are not to be compared with those we dig from the border near the wall.

**RADISHES.**—Those sown some time ago will now be up and growing freely. When under glass they are very apt to run into top growth, and when the leaves are very crowded good roots are never formed. Thin sowing is a cure for this, but few sow so thinly as they might do, and crowding young plants in spring is a daily occurrence, the evils of which can only be averted or remedied by timely and liberal thinning of the young plants. In the case of frame Radishes this should be done as soon as the plants are large enough to handle, and by leaving them just clear of each other every one of them will form a useful root. Open air sowing may now be practised, but success can only be expected from seed sown in a warm place. Of late years we bring this sowing of Radishes on by placing four boards on their edge frame fashion on the open ground, sow inside these, and then put a glass light over them to rest on the boards. This forwards and protects the crop wonderfully, is cheap and profitable.

**SHALLOTS, GARLIC, &c.**—The bulbs of these should be planted out. They will succeed in very shallow soil if it is rich and light. The best of the bulbs which are left from last year should be used for planting. The Shallots may be put in rows, allowing 10 inches between the rows, and 6 inches from bulb to bulb. The Garlic should have a few inches more space between the roots. If the soil in which they are planted has been recently dug the surface will be quite friable, and each bulb may be pushed into the soil with the hand. The top of the bulb only should just be seen above the soil. Potato Onions require the same treatment, but as they grow larger and become large clusters it is well to keep the bulbs 1 foot apart each way. These Potato Onions are much grown by many small garden holders, and as they are hardly ever affected by the grub or disease they are very satisfactory.

**RHUBARB.**—Where roots of this are scarce and only a few large ones exist the stock may soon be increased by digging up the old roots and dividing them into several pieces. If planted again at once into deep rich soil each one will bear well in early summer. If possible the roots ought to have a fresh place to grow in, and high-class produce will only be produced in the richest soil.

**FORCING.**—As the days lengthen and Kidney Beans and other young vegetables gain strength, give them more water, and as they begin to show fruit use guano water as a stimulant. Sow successional crops of every vegetable which is passing.

#### FRUIT FORCING.

**PEACHES AND NECTARINES.**—*Earliest House.*—Forcing owing to the continued sharp weather has still to be carried on by fire heat, and the fruit in consequence are later than usual. The trees, however, look well, and the time cannot be distant when we must have a change, and the fruit make rapid progress. In the meantime a steady course will be found the safest, maintaining a night temperature of 50° to 55°, and 60° to 65° by day artificially, and 5° to 10° more from sun heat, especially after closing, which will keep the trees in steady progress. Disbudding must be regulated by the growth. When the growth is strong the whole of the foreright shoots may be taken off at once, and some of the side shoots pinched back to form spurs on the extensions but not on shoots that will be removed after the fruit is gathered, always bearing in mind that the best break from the base must have room for extension and full exposure to light, and a shoot must be retained on a level with or above the fruit to attract the sap to it. Trees that have started weakly from overcropping in previous years, or are not very active at the roots, usually set freely, but to ease these no time should be lost in removing the least promising fruits from the under side of the trellises, and to help such trees supply weak liquid manure, and syringe the border, paths, and walls with clear liquid of the same character, which will soon cause an improvement in the colour of the foliage and strength of the growths. Syringe in the morning and early afternoon with water a few degrees warmer than the house, always, however, early enough to allow the foliage becoming dry before night. Ventilate a little at 60° and increase it with the rising temperature, avoiding cold draughts and sudden depressions of temperature. Examine inside borders, and give tepid water freely when necessary until it passes the drainage.

*Second House.*—Trees that were started early in the year will have set or be setting the fruit, for which fertilisation must be daily resorted to, and when the fruits are all set syringing will need to be resorted to, which will soon clear them of the remains of the flowers. The night temperature should be kept at 50°; 55° by day, and 5° to 10° rise from sun heat. Until the fruit is fairly swelling disbudding should be carefully



practised, and when commenced be followed up gradually. If there be a thick set of fruit gradually remove the smallest and worst placed.

**Third House.**—The house started early in this month will have the flowers well advanced, and should as a precautionary measure against aphides be fumigated, having the trees dry, and repeating it on alternate evenings. Cease syringing when the anthers show clear of the corollas, but maintain a genial condition of the atmosphere by damping available surfaces in the morning and afternoon. A temperature of 50° should be secured by day, and 40° to 45° at night will be sufficient for the present. Ventilate from 55°, allowing an advance to 60° or 65° from sun heat, with a free circulation of air. If there be any doubt as to the moisture of the inside borders make an examination, and if necessary give a thorough soaking with tepid water. If there is a great show of blossom rub off those at the back or under side of the shoots.

**Late Houses.**—Keep these well ventilated by night and day, except when frost prevails, and when the days are bright some shading over the roof lights will prevent the temperature rising so as to excite the buds and get the borders properly moistened before the buds begin swelling, or many of them will fall.

**MELONS.**—Where the weather still continues severe a night temperature of 60° to 65°, and day of 70° to 75° from fire heat will be suitable, rising to 80° or 85° with sun. Ventilate a little at 75° and close at 85°, rising to 90° with plenty of moisture. The plants that were shifted into 6-inch pots will now be ready for planting out in the ridges or hillocks in the Melon house for trellis training. Train with a clear stem to the trellis, rubbing off the side shoots as they show, and allow the leading shoots to advance two-thirds the distance up the trellis before stopping, also rub off every alternate lateral on opposite sides of the principal shoots. The laterals will show fruit at the second or third joint, or if no fruit show stop at the second joint. The soil should be moist when the plants are turned out and the soil pressed firmly around each stem, and keep the base of the plant a little higher than the surrounding level, so that the water may drain from not to the stem, for if the plant be low at the collar it is liable to become too damp and cause canker. Keep the bottom heat steady at 80°. Water carefully and always at a little distance from the stem. Maintain a genial condition of the atmosphere by damping in the morning and afternoon, also before dark if sharp firing is necessitated.

**CUCUMBERS.**—Endeavour to insure a steady progress in the plants, as nothing is gained by undue excitement at any time, especially when the weather is adverse to growth. Let the ventilating with stopping, tying, and regulating the growths be attended to regularly. Keep the evaporating troughs filled with liquid manure, the ammonia arising from which is invigorating to the plants and detrimental to insects.

**FIGS.**—*Earliest Trees in Pots.*—In a steady bottom heat of 70° to 75° the roots will now be very active and the trees have a number of fully developed leaves, which, when exposed to the full influence of light, need particular attention in the watering, as dryness at the roots will prove fatal to the most forward fruit. The pots being full of roots, hoops made of lead or zinc 4 inches deep should be placed inside the rims and rich surface dressings given as the roots occupy it, not giving it all at once, but little and often, and liquid manure in a weak tepid state in sufficient quantity to pass through to the drainage. The atmosphere must be kept in a genial condition by syringing twice a day when the weather is fine, and by damping the surface of the bed, walls, and paths when dull. Keep the night temperature at 60°, falling 5° on cold nights, 60° to 65° by day artificially on cold days, and 10° to 15° rise with gleams of sun. Ventilate at 70°, keep with sun heat through the day at 75° to 80°, and close early, so as to run the temperature to 85°. Attend to stopping and tying as growth advances, and guard against overcrowding as one of the greatest evils, for Figs to have flavour and colour must have full exposure to light and a free circulation of air, to effect which the growths must be thin and evenly placed.

*Early-forced Planted-out Trees.*—Those started early in January will soon require dishudding and stopping, but where trellis room admits the leading shoots should be allowed to extend to the extremity without stopping, mulch the borders with rich compost as the roots rise to the surface, and water freely with tepid liquid manure, encouraging roots by keeping the surface of the border moist.

**Late Houses.**—Pruning and cleansing the trees must now be completed and the houses closed by the end of the month. In late houses the growths should be kept thin, so that the young growths may be firm, short-jointed, and with judicious management well matured, otherwise satisfactory crops can hardly be expected.

#### PLANT HOUSES.

**Azaleas.**—Varieties of *A. indica* as they cease flowering should be placed in a temperature of 50° to 55°. When these plants have been forced into bloom by gentle heat, they are seriously checked if placed in cold quarters after they have flowered; but if placed direct in some structure where the temperature advised can be maintained, they continue making their growth. It is much better to assist plants to make their growth early in the season by gentle heat than to force them unduly. These plants should be syringed twice daily, and the atmosphere of the house in which they are arranged kept moderately moist. Under these conditions the roots of the plants will soon be in full activity, and when in this stage those that require repotting should be done. Employ clean well-drained pots, and the new soil, which must consist of peat and coarse sand, should be pressed firmly into the pot. In fact, it must be made a little firmer than

the old soil, or, when water is applied it will pass through the new soil and leave the old soil dry. The old soil as well as the new soil at potting time must be in an intermediate state of moisture. Freely syringe the plants after potting, so that water can be withheld from the roots as long as possible. This gives them ample time to recover from injuries received in the operation. In potting, the old soil should not be disturbed further than the removal of the drainage from the base. All that it may be necessary to keep in small pots may have a little Standen's manure applied to the surface, at intervals of about a month. Straggling shoots may be pruned back so as to keep the heads of the plants shapely and within due bounds. Watch for thrips, and if they appear destroy them with a weak solution of tobacco water.

**Epacris.**—As the flowers fade prune these close back and place them in a similar temperature to that in which they have been while flowering. If these are syringed twice daily they will soon break into growth. For this purpose these plants enjoy gentle heat, but as soon as they have made 1 or 2 inches of growth, gradually harden them to cooler treatment until they can be grown under cool conditions. The roots of these plants are generally active by the time 2 inches of growth have been made, and in this stage they may be repotted if they require it, using the same soil as advised for Azaleas; observe the same conditions as regards potting throughout. Artificial manure is also beneficial to those plants that do not need repotting.

**Heaths.**—Such varieties as *E. gracilis*, *E. hyemalis*, and others of a soft-wooded nature that were cut back late last year and failed to flower will, if they have been properly treated, be in good condition for transferring into larger pots. If these plants have now young growing shoots upon them about 2 inches in length, they will make beautiful specimens for flowering early in autumn. Press the compost of soil, peat, and sand firmly into the pots. If the plants are crowded with shoots they may be tied out or thinned; if the latter, those left will attain a greater size, and a few well-flowered shoots on each plant are more effective than those with a greater number of smaller shoots. Young stock in 3 and 4-inch pots with five or six young growing shoots upon them should be placed at once into 5 and 6-inch pots, according to their size and strength. These, if well cared for, will by autumn be equal to those plants grown by the trade in the neighbourhood of London. Grow these plants in frames where frost can be excluded by means of hot-water pipes or by matting during bad weather. The frames may be kept moderately close and the plants carefully watered until they have commenced rooting into the new soil. Ventilate freely afterwards to ensure a sturdy compact growth. Plants that flowered and have been cut back should be pushed into growth as quickly as possible, or they will fail to make their growth and ripen it sufficiently to flower well in autumn and winter. For this purpose the plants may be kept in a temperature of 45° to 55° by night, and syringed once or twice daily according to the state of the weather.

**Hardwooded Heaths.**—All that require potting should be done at once, so that they will become partially established in their pots before the sun has too much power. Select some of the best peat for these, broken up with the hand and used in a moderately rough state; in addition to a liberal dash of coarse sand a little charcoal may be used with the peat. The soil should be pressed firmly into the pots, and the plants stood upon some moisture-holding material in the house in which they are grown. The ventilators may be kept closer for about a fortnight after potting, and the pots and stage being liberally syringed, so that water can be withheld from the roots as long as possible. After potting has been completed push on staking and tying as rapidly as possible. No more stakes than sufficient to maintain the plants steady should be used. If the plants are tied with green thread very few stakes will be needed. The only tying that young stock needs is to bring down the strongest shoots towards the rim of the pots, so that the smaller and weaker ones will have a chance of gaining strength. When growth commences strong shoots that take the lead should occasionally be pinched. Young healthy plants when potted may be placed into pots 2 inches larger than those in which they are growing.

## THE BEE-KEEPER.

### ABOUT BEES.

In the spring of last year I gave your readers an account of my experience in bee-keeping. I had twelve stocks then, apparently flourishing, and as I had a swarm on the 1st of April it seemed likely that we should retrieve the disasters of the previous season. By May, however, two stocks and the swarm were lost, so I began the season with ten, all in Neighbour's ten-bar-frame hive, No. 99 of catalogue.

I set out with the intention of succeeding if possible, and was equally resolved to state my experience as a guide to other amateurs. I fed the bees with flour cake and sugar candy, and have one opinion upon them both—viz., they may serve to keep bees alive, but need something to moisten them, and that bees cannot get without fetching it, which causes them to fly out in the cold air, get chilled, and die; whereas if the food were



supplied in a liquid form it would be at once available as food or store. The swarm that issued on April 1st was fed with syrup. The bees seemed to thrive, but I noticed a few days after they became uneasy, running in and out of the hive, and along the flight board. Clearly the queen was lost. The bees were very busy, however, formed comb along five bars, and resisted fiercely every effort at examination. I resolved to await the issue. Food ceased to be taken down, the bees left the hive, and I found no less than three royal cells in the comb they had made, and a number of drone as well as worker cells. What did this mean? That I had not secured the queen in hiving, she had died or been lost early, hence the effort to raise another with drones for the purpose of continuance of the race. One hive, though it had plenty of bees when I introduced the flour cake and candy, they all died, clear proof that they had stood a long siege, and had cast out the slain from day to day. Another hive, with bees taken from a neighbour in the previous autumn, also died, their heads all stuck in the cells, and so perished of cold one frosty night in April. They had plenty of honey in store, having been placed in a hive, the bees of which had succumbed to Ligurians in August twelve months before. This stock had lost its queen, as the bees were very irritable, and guarded the entrance with remarkable tenacity.

This was a poor beginning of the season 1885. The bees commenced swarming the first week in June, a galvanised bucket I used to get them into the hive with was filled to overflowing, and I had four such. I supered the four, and had four twenty-one sections of 2 lbs. each, filled with honey. I had other swarms, and second and third swarms at intervals up to the middle of July, which it was said would come to nothing, but I had an idea, derived from Mr. Pettigrew, that second swarms were as good as the first the year following their existence as a separate colony. Why should a second swarm be good for nothing? The queen is young, and if by judicious care in feeding we get sufficient bees for warmth so as to winter safely, I cannot see why it should not do well. Of course, if feeding is not intended, then I doubt not it will be worth little, if anything.

Altogether I had nine swarms, eight natural and one driven, I think is queenless, but it took food well in autumn, yet now shows a restlessness and activity which I do not like to see early in February. It has, however, plenty of bees, but I shall not make an examination until the weather gets warmer, nor feed before the middle of March. I tried to make another, and failed, and having two hives that did not swarm—only one that gave the swarm on the 1st April—I had nine swarms out of seven hives, and except the driven one all is well with them. They are very quiet, and the weight says they have store on hand in plenty. The Crocuses, however, are showing colour, and if the weather prove genial we may soon hear the bees' glad hum.

I wish to return to the swarm that issued on the 1st April. The stock was strong it issued from, and the old queen was deposed to make room for the new one. It is likely, food being scarce, that the emigration was insisted upon by the workers, and they drove her out. She was not in the cluster when hived, for I saw her majesty on the ground, and she took wing and rose to the pole on which the bees had clustered, and I thought I secured her at the second attempt at getting them into the hive, if not they would have left the hive and returned to the parent stock. They did not, however, but set to work and formed the comb with royal cells as before described. The old stock giving the swarm on the 1st of April did not swarm again, which might be due to my having supered it, and which the bees filled with honey.

Two swarms one day issued together and joined, and as they were first swarms I had four (rather five, as I shall show presently) stocks that gave no increase whatever, and really only had five that were profitable as regards honey—*i.e.*, for first swarms and one stock, or that from which the swarm issued on the 1st April. Six gave nine swarms—eight natural and one artificial. Though I supered the two that made no effort at swarming, no honey was stored therein. They neither swarmed nor stored honey in the supers. The queens were not prolific. I do not think so. One was a taken-up stock of the previous autumn put in a hive filled with store, and defunct through over-swarming and driving; the other was a late swarm put in a hive also containing plenty of store, everything ready to hand. I had swarms later that were put in empty hives, and there swarmed. I had read somewhere that these hives were the kind to put bees into if you had them, as the comb, to say nothing of the honey, would give the new comers a start. It seemed reasonable, but I do not consider it is, for the bees in swarming are gorged

with honey, and the first thing they do is to disgorge and form comb. The bees do not do well in such hives, and as regards swarms are, I think, best left alone, giving only comb formation, feeding and leaving the bees to form their own nest. It answers in autumn for taken-up bees, but even these are placed at a disadvantage when in hives where the bees have died out through loss of queen or robbing, especially the former, for the queen being lost the bees not only keep on storing honey, but pollen, or bee-bread; the cells that would have contained brood, had the queen lived, are crammed with this grub food in anticipation of a mother being reared, no doubt, and it hardens, giving the bees a great amount of labour in clearing it out in spring to make room for brood. They carry it out in pellets nearly as large as themselves, which must entail much labour, and interfere with the economy of the colony. I only tried one attempt at brood-spreading, it was the first, and for some time to come will be the last. It appears to be the best way to secure foul brood.

When the extractors—there was a trader that practised it with over thirty stocks within half a mile—commenced extracting, I kept a sharp look out with scouts to inform me of the doings of the enemy, and within twenty-four hours the Ligurians and half-breeds put in appearance and took a close scrutiny of every hive. Some fraternised with the blacks and lived on apparently good terms until autumn, when they disappeared. There was no robbing, I kept them on a war footing—*viz.*, strong, and narrowed the entrances in anticipation of an attack, and it certainly rendered them safe, as the assailants soon were seen running with outstretched wing along the ground away from the hives. It was tried again at the second extraction—*i.e.*, the robbing by the Ligurians and cross-breeds, the Carniolians, though scouting, did not attack, and proved a failure both as to robbing and fraternising. The next news I heard were that the trader was going to move his bees, and now they are gone. It is said that it does not pay, I presume on the extracting principle, but the chief reason, I think, was the extracting caused the bees to sting everybody for some distance around, therefore were a nuisance. If the bees did not pay in honey there was the sale of swarms or stocks, and hives were no inconsiderable manufacture; trade must have been slack if the bees did not pay in one shape or other. But I feel certain that feeding with syrup and extracting it, it may be along with pure nectar, is not the way to make anything pay. I do not think syrup can be converted into honey even by bees, and it is this that has brought down the price to 6d. per lb., and tells so disastrously against the keeper of bees upon honourable principles—*i.e.*, selling honey, not syrup. Syrup costs about 1½d. per lb., and to get 6d. for it after the trouble of boiling, feeding and extracting, must leave a profit of 200 per cent. This is bee-farming with a vengeance. The farmer and cottager who have pure honey cannot compete against such a system, and then people wonder why they don't keep bees. Make sure of a market for pure honey only, and then these, the farmer and cottager, who should be the most interested and benefited, will hold their own to the mutual benefit of themselves and the public.—G. ABBEY.

(To be continued.)

#### THE COTTAGER'S STRAW SKEP—HOW TO GET SECTION HONEY FROM.

ALTHOUGH I have been an interested reader of your articles on bee-keeping for some years, and have become one of the fraternity in a small way, I have never till now taken up my pen on the subject. After reading "A Hallamshire Bee-keeper's" article on the "Dark Side of Bee-keeping," I am afraid the latter gentleman will not think me particularly happy in heading my first letter "The Cottager's Straw Skep." Your correspondent tells your readers that the cottager's straw skep system was perfected hundreds of years ago, and he will naturally wonder what new thing can be written about it. Well, I do not suppose anything new will come of my scribbling, but old things are often acceptable to new readers, and if our worthy Editors think these notes of any service to these, the old hands will please pass them over. To begin with, I am not going to enter into any controversy with expert bee-keepers on the merits or demerits of any particular system, but I hope I may be pardoned if I take exception to the perfection of a system of management the "cheapness and simplicity" of which is summed up in "hiving the swarms and brimstoning those not wanted for stocks." I hope there are many hundreds of cottagers now to be found throughout this country who would be sorry to resort to the brimstone pit, and who work their straw skeps on much more intelligent principles than they did hundreds of years ago.

"Felix" has this week urged the necessity of every bee-keeper, who wants to get the best price for comb honey, turning his special attention to sections. There is no doubt about the soundness of his advice. The old supers or "caps" are scarcely saleable when put in the market along with honey in sections, and cottagers have found that out to their cost



during last season. I hope it may not be labour lost if I can draw the attention of those cottagers, or any who have straw skeps worked on the old plan, and try to show them how they can with little expense get sections from their old hives and so increase its value. But as the bee-keeping column is limited, perhaps it will be most acceptable to our Editors in small supplies, so having written this much I will defer entering into the subject till another week.—A COTTAGE BEE-KEEPER.

### DIVIDING BOARDS.

I THANK you kindly for answering my last query regarding reversible frames. I am pleased to say this is the most simple of any plan I have seen, unless it be with the compound frame hive explained by "A Lanarkshire Bee-keeper" which is capable of more diversity of working than any other hive, and more in accordance with the nature of the bees and well adapted for transferring the honey from body frames to supers without reversing, by simply changing the position of the combs. But my object in writing at present is not to discuss the special merits of any hive, but to get further information as to facts. In the *British Bee Journal* for January 14th (page 19), Mr. F. Lyon, in answer to a correspondent, says, "When bar-frame hives were originally used it was the practice to winter bees on all the combs. The division boards were then called 'dummies,' and the only use made of them was to remove them to give lateral space for the extraction of the frames without rolling the bees between the combs, &c." He then goes on to show the advantage of the close dividing board over the so-called "dummy." I know the feeling that exists regarding the invention of certain bee appliances and the pirating of others' ideas. I have also observed the invention of close-fitting dividing boards claimed by different parties. I have in use a hive which cannot be less than thirty years old, which has a close-fitting dividing board of Scotch make; and although I am an Englishman, and would gladly give the palm of victory to England, still I am inclined to think from the evidence I am in possession of that Mr. F. Lyon is wrong. The close-fitting dividing board is a Scotch invention, and was in use long before the "dummy," but will be glad to hear what your other correspondents have to say in the matter and establish the truth, all the more necessary seeing that so many ideas were given in this Journal first and pirated in the *British Bee Journal*.

I also observe a dispute in the same Journal about the priority of the "Benthall" crate. Crates similar to these, with the addition of boards for top and bottom for convenience for marketing, were made in Scotland in hundreds some six years ago. Mr. A. Cameron, Blairathol, is supposed to be the inventor.—J. H.

### TRADE CATALOGUES RECEIVED.

Thomas S. Ware, Tottenham, London.—*Illustrated Catalogue of Choice Hardy Perennials, Catalogue of Hardy Climbing and Trailing Plants, List of Chrysanthemums, and Catalogue of Hardy Florists' Flowers.*



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (N.).—We think the price of the pamphlet you name is 6d., but why not send a postcard to the author, whose address you have?

White Cineraria (F. G.).—The variety is no doubt effective, but not new. Messrs. Carter & Co. sent us several white Cineraria flowers last year, one of them, so far as we can remember, identical with your own.

Odontoglossum cirrhosum with "branching spikes" (B. P.).—It is usual for strong plants to produce "branching spikes," as they are commonly termed, but the correct title is panicle. At the last meeting of the Royal Horticultural Society a panicle was shown like that you describe, but not so large. Your plants must be in capital condition.

Soil for Roses (Omega).—We do not consider that lumps of clay mixed with soil are of much benefit to Roses or anything else. If you can dry some clay in a shed so that it can be pounded into a rough powder, and add one barrowful to five or six of the turf, you will have an excellent medium

for Roses, and healthy plants and fine blooms may be had with the aid of rich top-dressings and liquid manure.

Soil for Ferns (*Filices*).—The soil marked No. 1 would grow Ferns admirably, potting firmly and giving clear soot water as liquid manure when the pots become filled with roots, and you do not wish to place the plants in larger. With a supply of this we should certainly not purchase the more costly kinds. By adding powdered clay, or any strong soil you can get, it can be made heavy enough for many other plants, but you do not say what the choice plants are that you desire to grow.

Climbers for Roof (C. C.).—You appear to want what is not very easy to find. Roses thinly trained would not shade the roof to any great extent, and their blooms would be useful. The foliage can be kept clean by lightly fumigating the house before any insects appear. If you wait for them with the object of saving tobacco paper you will lose much more than you will gain. It is easy to err in covering a roof when flowering plants are arranged on the stages below. Strong-growing Fuchsias, planted out and trained and pruned like Vines, have a beautiful effect, but they are liable to the attacks of aphids and thrips. Timely fumigating is a preventive of both.

Striking Cuttings in the Tropics (*Cinchona*).—It is not necessary to insert your letter, as it might not elicit a reply from general readers. The ground itself in the tropics affords sufficient "bottom heat" for striking cuttings, if the right time be chosen for inserting them; and if kept moist, close, and shaded, under a handlight or glazed case, so that evaporation is arrested, and the leaves remain fresh, roots will be emitted the same as they would be in a hotbed at home.

Figs Falling (*A Kentish Subscriber*).—Figs that form in autumn, and are now as large as small nuts, are almost certain to fall in the spring or early summer. It is a good plan to remove these, and others that are less than the smallest peas may be expected to ripen, assuming surface roots are plentiful and adequately supported with water, and also gross growths are prevented by pinching that might otherwise attract the sap from the fruit. You say the trees have been "root-pruned occasionally," but that does not indicate their condition, and if they grow luxuriantly root-prune them again and fill in the trench with loam and a sixth part of calcareous matter, such as lime rubbish, pressing it down very firmly with a wooden rammer. Your object should be to induce short-jointed sturdy growth that will be matured in the autumn, and the fruit may then be expected to ripen.

Seedling Zonal Pelargoniums (*Amateur*).—If your plants are in separate pots we should neither repot them nor cut them down, but allow them to flower so as to test the merits of the varieties, then increase those only that are worthy of preservation; some of them may possibly be of little worth. If crowded in a box you might take off the tops, insert each in a separate small pot of sandy soil, in which they would strike in a temperature of 60° and upwards, and soon flower. If you do this the original plants might be planted out in the open border in due time, and there flower. It is as a rule the best for amateurs to grow named varieties, seedlings occupying much space, flowering sparsely, and a number of them not worth perpetuating; still, apart from producing a display, a certain amount of interest attaches to raising seedlings, and florists are satisfied if they get one superior variety out of fifty plants.

Improving Vine Border (*J. C., Somerset*).—If you extend the border under the glass you will find a difference in your tennis lawn. We think you can improve the Vines without disturbing the lawn, though the border is narrow. Take off the soil till you bare several of the main roots, but keep them with any smaller roots moist. Notch the large roots at intervals of 2 feet, cutting straight down almost to the centre, then with upward cuts—that is, the edge of the knife facing the house, take out wedges, all to be finished smooth and clean. Mix some sandy loam, leaf mould, and manure sufficiently decayed and dried to be rubbed through a three-quarter-inch-meshed sieve, and wood ashes in equal parts, with which surround and cover the roots 2 inches deep; then spread on 4 inches of turfy loam, placing on this a covering of manure for keeping all moist. Fresh roots will then form, and during the summer you can give liquid manure or a top-dressing of some approved fertiliser, one being approvingly mentioned in another column by a good gardener, and may be worthy of your attention. We have seen Vines greatly improved in a smaller border than yours by the practice advised.

Making Bone Manure (*W. B.*).—We extract the following recipe from the "Gardeners' Year Book" on making superphosphate of lime:—"Place 5 cwt. (or twelve bushels) of bone on an earthen floor, surrounded by a rim of ashes; pour on as much water as the bones will suck up, and then pour on 2 cwt. of sulphuric acid; it will boil somewhat violently for a while; when this has subsided it will get tolerably solid, and the ashes and all may be shovelled up together, and will be fit for use in a day or two." Another mode of dissolving bones is given in the same work which we cite:—"Take a large watertight hogshead and cover the bottom with about 6 inches deep of dry soil; on this put a layer of bones of the same depth, and cover them entirely with wood ashes; on these another layer of bones, then ashes, and so on till the hogshead is full, placing a good thickness of ashes on the top. Leave it exposed to the rains all summer and winter till spring. Then on removing the contents of the hogshead, the bones will crumble to powder under a slight pressure, and form one of the most valuable manures ready for immediate use." The manurial value of bones consists in the great quantity of phosphate of lime they contain.

Newly Planted Vines and Roses (*Old Ebor*).—You had better not allow the canes to bear a "few bunches" this year, notwithstanding the designation "Fruiting Vines." They would bear fruit, no doubt, but might be so exhausted as to be practically ruined. Your object should be to encourage the growth of strong canes this year, and to effect this you will in all probability act wisely by rubbing off several of the buds from the top downwards, so as to concentrate the root force and sap on a growth starting from the base of the rafter, in fact the lower the better, provided you select a bold bud in a light position. As you give no particulars as to length and strength we cannot give a more definite reply. If the Roses have been dug from the open ground, shorten them to good buds from a foot to 18 inches



from the soil; if they have been grown in pots and planted without any material disturbance of the roots the shoots may be cut to about half their length.

**Amaryllis Belladonna (St. Edmunds).**—You could not very well have made a greater mistake than keeping the bulbs in paper bags till the present time. You had better plant them in gritty soil 5 or 6 inches deep, close to a wall facing the south, and let them remain there permanently. If you wish to flower this *Amaryllis* in pots procure some strong bulbs in summer, pot them in sandy loam, and they will soon throw up flower spikes. They must be placed on a shelf near the glass in a warm greenhouse, afterwards to make good foliage, and when the foliage dies down the pots may be stood on a base impervious to worms, near a wall facing the south till September, then remove some of the old soil, add fresh, and take them in for flowering. We find them succeed and flower better planted out as suggested than in pots, but strong fresh bulbs flower very well. You ought to have potted or planted your bulbs in August or early September.

**Encharises (T. B.).**—Your plants appear to be infested with the destructive mite that appears to be spreading very rapidly, and unless it is destroyed the plants cannot flourish. As you are a new subscriber you probably did not see what was published a few weeks ago on well washing the bulbs in a solution of softsoap and petroleum, 2 ozs. of softsoap with a little soda being dissolved in a gallon of boiling water, and stirring in very briskly while hot a small wineglassful of common petroleum, applying this as hot as the hand can be borne in it, rubbing it into every crevice with the aid of a soft brush. That has answered in the case of some infested bulbs, another cultivator having found a similar mixture of Gishurst compound and Fir tree oil efficacious, except when the insects eat quite into the bulbs. In that state they are beyond cure, and should be burned. Place them in rather small well-drained pots in turfy loam, adding sand and crushed charcoal to keep it sweet and porous, placing some of the latter in contact with the bulbs. Plunge the pots in a bottom heat of 80° to 85°, if convenient in a stove or pit having a night temperature of 65°, applying water cautiously and judiciously. When the plants are established they require copious supplies of water when flower stems are visible, liquid manure to support good foliage, and when this is fully developed a gradual reduction of water and a rest of six weeks or so. Then, when placed in heat, they throw up another series of spikes. Good plants well managed flower freely three times in twelve months.

**Sheep's Nose Apple (Sir Henry Allsopp).**—The specimens you have sent are of this variety, which is described as follows in the new edition of the "Fruit Manual":—Fruit, medium sized, 2½ inches wide and the same high; distinctly angular, broad at the base and tapering to two-thirds of its height, where it forms a contracted waist, and thence it narrows to the crown, where it terminates in five prominent knobs. Skin, bright crimson, striped with broken stripes of rich yellow, except where it is shaded, and there it is either yellow or marked with faint streaks. Eye, closed, with long erect segments, set in a very angular and plaited basin. Stamens, marginal; tube, long conical. Stalk, a quarter of an inch long, inserted in a wide and furrowed cavity. Flesh, tender, juicy, sweet, and with a mild acidity. Cells, ovate; abaxile. A Somersetshire cider Apple, and also good for cooking; in use during October and November. It is a very handsome-looking Apple, and of remarkable shape. Fruit often keeps till this season of the year.

**Starting Vines (F. J.).**—You may start the Vines now; in fact, we gather from your letter that they are starting, and their growth must be steadily maintained. It is not too early for them, but if you have no frames into which you can remove the bedding plants by-and-by they will become drawn and tender by the heat to which they will be subjected. Fire must be employed for the Vines in accordance with the weather and the condition of their growth. At present, and until the growths are half an inch long, a minimum night temperature of 50° will suffice, or say 55° at about 9 o'clock at night, as there may be a fall of 5° before morning. When leaves commence unfolding the minimum night temperature may be raised to 55°, increasing to 60° when the leaves are as large as your hand and the bunches advancing, and when flowering the temperature may be 65° or thereabouts. These are all night temperatures. When there is no sun whatever in the daytime let the temperature be raised from the pipes 5° or 6°, not more; but with sun it may be quite 15° above the night temperature respectively. Do not employ fire when you can obtain sun heat, this being by far the better and cheaper. Close early in the afternoons, syringing the Vines till they are fairly started, also damping the house on bright days; by early closing we mean so as to retain the maximum sun heat as long as possible; but do not allow the temperature to fall to the night figures before the fire is started, as it will certainly fall lower in spite of vigorous efforts to prevent it. The pipes should be warmed in the afternoon to meet the declining temperature, the weather being the guide as to the time and extent of the fire heat to afford. But do not "play with fire" and have your house warmer at night than in the day, or you will fail in your object. A little air should be admitted at the top of the house as soon as the temperature rises 5° above the night minimum, increasing the ventilation as the heat increases, not letting the house get too hot then, and throw open the sashes to cool it. It is by committing that mistake that many fail. This information has been given in articles and answers repeatedly, but you appear to have overlooked it; we do not begrudge its repetition, as it will be of service to inexperienced amateurs generally and new readers particularly at this period of the year. The thermometer should be shaded from the sun. April is soon enough for starting Begonias for planting in beds.

**Gooseberry Branches Dying (Somerset).**—It is a long time since we saw more ungenial soil than the samples you have sent. There is no wonder that you have failures. The wonder is that Gooseberries grow at all. It is close, cold, and wet. Certainly it should be drained, as that would result in an admission of air and an increase of temperature. Then lime, ashes, sawdust, and gritty matter of any kind should be added freely, and manure containing much straw should be dug in in the autumn, or when the surface is dry, as such land should never be worked when wet. The proper method of draining would be to form drains 7 yards apart and 3 feet deep, provided—and this is important—a depth of 18 inches of ballast or rubble is placed in for the free percolation of water to the pipes. It would be of little use covering the pipes 3 feet deep with clay. In the absence of hard material

drain from 18 inches to 2 feet deep, covering the pipes with brushwood or the branches of prunings of trees and hedges. Mind that the pipes are placed on a firm base, and level, as if some sink below the others labour will be wasted. Such soil should not be trenched. It is, no doubt, of the same character as that to which Mr. Iggulden alluded when he denounced trenching some months ago. It is sufficiently retentive to hold the necessary nutriment for crops in a foot in depth, and we should break up the subsoil and leave it, not bring it to the surface. We do not analyse soils, but should not be surprised to find iron in the heavy inert mass. The Currant spray is infested with the bud mite. Raise a clean stock as far as possible from the infested bushes, and these burn as soon as you can spare them.

**Market Gardening (K.).**—There is a good deal in the books you name, the truth of which you will be extremely fortunate if you realise in practice. The best advice we can give you is to consult with some respectable green-grocers, and ascertain from them the vegetables most in demand. You must rely on local custom, and not think of sending produce to Covent Garden; neither must you base your calculations on the published prices, for though they are realised it by no means follows that you can rely on obtaining them whenever you may happen to have produce for sale. As you appear to be without experience in market gardening you will have to work very hard to make any such profits as you appear to anticipate, unless you get possession of extraordinarily good land at a very low rent. As to fruit culture, some few years must necessarily elapse before it can be profitable if you have to plant trees to begin with. Strawberries and Raspberries would give the quickest return, always provided the soil be favourable. Early Potatoes, such as Myatt's Prolific and Beauty of Hebron, may be grown, as Brussels Sprouts, Savoys, Veitch's Autumn Giant Cauliflower, and spring Broccoli can be grown between them. By all means try Shallots and Parsnips, but do not expect to make a fortune from them. Good Asparagus plantations pay well in four years from sowing seed, or two after planting crowns. Early Lettuces and Cabbages pay well, but they must be early, for if late in the market they are of little worth. It is the same with most things. The person who is first in the market gets the best prices. Ellam's Early Cabbage and the Paris White Cos Lettuce are good varieties. Onions pay very well in some soils, so do early Turnips and Carrots; whereas in others the crops are not remunerative. Celery, such as the Leicester Red, well grown, gives a good profit in the hands of some persons; and if you have a certain market for Peas as soon as they are ready they may be grown, but they quickly spoil if not gathered. Prizetaker is a free-bearing and good market variety. Dwarf Kidney Beans pay fairly well sometimes, Scarlet Runners better. You can readily find out by experience the crops that will answer best in the soil and district. Market gardening is not by any means the easy calling it is represented in certain books, and you must make up your mind to have produce to sell at times for which you cannot find a ready market. Some persons succeed admirably, others fail completely, so much depending on the judgment, aptitude, and industry of individuals. The quantity of coke requisite for a given extent of piping depends entirely on the weather and the temperature maintained in a house. If yours is merely a greenhouse we think the quantity you name is more than we should be content to burn, and possibly we would manage with less, so much depending on the stoker.

**Names of Fruits.**—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. (J. K.).—We can only name 5, which is Minchull Crab. All the rest were so bruised and discoloured it was impossible to make anything of them. They had no packing. (N. H.).—The labels were all off the fruit sent, so we cannot refer to them by numbers. The Pear is Chaumontel. The green Apple is Winter Greening, and the red one we do not know. (W. H. B.).—Formosa Nonpareil. (H. Hewat Craw).—Your Apple is certainly neither Court of Wick nor Golden Harvey. It most of all resembles Kerry Pippin or Barcelona Pearmain, and we should have considered it to be the former were it not that the season of that variety is long past. We shall endeavour to discover the name, and meanwhile will thank you to inform us whether the oval or the round, specimens of which you sent examples, is the more prevalent.

**Names of Plants.**—We only undertake to name species of plants, no varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (N. H.).—No. 4, *Escallonia rubra*; 5, *Aucuba japonica variegata*; 6, *Euonymus japonicus variegatus*.

#### COVENT GARDEN MARKET.—FEBRUARY 17TH.

MARKET has been very dull. A slight improvement in Grapes. Large consignments of Nova Scotia Apples to hand.

#### VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.	
Artichokes	.. .. dozen	1	0	to	0	0	Lettuce	.. .. dozen	1	0	to 1	6
Asparagus	.. .. bundle	2	0	8	0	0	Musbrooms	.. .. punnet	0	6	1	0
Beans, Kidney	.. .. lb.	0	6	1	0	0	Mustard and Cress	.. .. punnet	0	0	0	0
Beet, Red	.. .. dozen	1	0	2	0	0	Onions	.. .. bunch	0	3	0	0
Broccoli	.. .. bundle	0	9	1	0	0	Parsley	.. .. dozen bunches	2	0	3	0
Brussels Sprouts	.. .. ½ sieve	2	6	3	0	0	Parsnips	.. .. dozen	1	0	2	0
Cabbage	.. .. dozen	0	0	0	0	0	Potatoes	.. .. cwt.	4	0	5	0
Capsicums	.. .. 100	1	6	2	0	0	"    Kidney	.. .. cwt.	4	0	5	0
Carrots	.. .. bunch	0	3	0	4	0	Rhubarb	.. .. bundle	0	2	0	4
Cauliflowers	.. .. dozen	2	0	3	0	0	Salsafy	.. .. bundle	1	0	0	0
Celery	.. .. bundle	1	6	2	0	0	Scorzoneria	.. .. bundle	1	6	0	0
Coleworts	.. .. doz. bunches	2	0	4	0	0	Seakale	.. .. per basket	2	0	2	6
Cucumbers	.. .. each	0	6	0	9	0	Shallots	.. .. lb.	0	3	0	6
Endive	.. .. dozen	1	0	2	0	0	Spinach	.. .. bnsbel	2	0	4	0
Herbs	.. .. bunch	0	2	0	0	0	Tomatoes	.. .. lb.	0	9	1	6
Leeks	.. .. bunch	0	3	0	4	0	Turnips	.. .. bunch	0	4	0	0



## FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. 1 sieve	1 0	3 6	Oranges .. .. 100	4 0	6 0
" Canadian .. barrel	10 0	12 6	Peaches .. .. per doz.	0 0	0 0
" Nova Scotia ..	10 0	12 6	Pears, kitchen .. dozen	1 0	1 6
Cobs, Kent .. per 100 lbs.	27 6	30 0	" dessert .. dozen	0 0	0 0
Figs .. .. dozen	0 0	0 0	Pine Apples English .. lb.	1 0	1 6
Grapes .. .. lb.	2 0	5 0	Pinns .. .. 1 sieve	0 0	0 0
Lemons .. .. case	8 0	10 0	St. Michael Pines .. each	2 0	6 0
Melon .. .. each	0 0	0 0			

## PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi .. dozen	9 0	18 0	Ficus elastica .. each	1 6	7 0
Arbor vite (golden) dozen	6 0	18 0	Ferns, in variety .. dozen	4 0	18 0
" (common) .. dozen	6 0	12 0	Foliage Plants, var. each	2 0	10 0
Arum Lilies .. .. dozen	12 0	18 0	Genistas .. .. dozen	10 0	12 0
Azaleas .. .. dozen	24 0	42 0	Hyacinths .. .. dozen	6 0	9 0
Begonias .. .. dozen	6 0	12 0	Marguerite Daisy .. dozen	8 0	12 0
Bouvardia .. .. dozen	12 0	18 0	Myrtles .. .. dozen	6 0	12 0
Cineraria .. .. dozen	10 0	12 0	Palms, in var. .. each	2 6	21 0
Cyclamen .. .. dozen	12 0	24 0	Pelargoniums, scarlet, doz.	6 0	9 0
Cyperus .. .. dozen	4 0	12 0	Poinsettia .. .. dozen	0 0	0 0
Dracana terminalis, dozen	30 0	60 0	Primulas, single, dozen	4 0	6 0
" viridis .. .. dozen	12 0	24 0	Solanum .. .. dozen	8 0	12 0
Erica, various .. .. dozen	12 0	24 0	Spiraea .. .. dozen	12 0	18 0
Euonymus, in var. dozen	6 0	18 0	Tulips .. .. 12 pots	6 0	9 0
Evergreens, in var. dozen	6 0	24 0			

## CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. 12 bunches	2 0	4 0	Lilies of the Valley, in clumps or pots, per doz.	15 0	30 0
Acacia (Mimosa), Fr., per bunch	1 0	1 6	Lily of the Valley, 12 sprays	0 9	1 6
Arum Lilies .. 12 blooms	4 0	8 0	Marguerites .. 12 bunches	6 0	8 0
Azalea .. .. 12 sprays	0 6	1 0	Mignonette .. 12 bunches	3 0	6 0
Bouvardias .. per bunch	0 6	1 0	Pelargoniums, per 12 trusses	1 0	1 6
Camellias .. 12 b'oms	2 0	5 0	" scarlet, 12 trusses	0 9	1 0
Carnations .. 12 blooms	1 0	8 0	Poinsettia .. 12 b'oms	0 0	0 0
Chrysanthemums 12 blooms	2 0	4 0	Roses (indoor), per dozen	3 0	9 0
" .. 12 bunches	9 0	18 0	" Tea, French .. dozen	1 0	2 0
Cyclamen .. doz. blooms	0 4	0 9	" red, French .. dozen	2 0	4 0
Epiphyllum .. doz. blooms	0 6	0 9	Spiraea .. .. 12 sprays	1 0	0 0
Encharis .. per dozen	4 0	6 0	Tropaeolum .. 12 bunches	2 0	3 0
Gardenias .. 12 blooms	6 0	18 0	Tuberose .. 12 blooms	1 6	3 0
Hellebore .. doz. blooms	0 6	1 0	Tulips .. .. dozen blooms	0 9	1 0
Hyacinths, Roman, 12 sprays	1 0	1 6	Violets .. .. 12 bunches	1 0	1 6
Lapageria, white, 12 blooms	0 0	0 0	" Czar, Fr., .. bunch	1 6	2 0
Lapageria, red .. 12 blooms	1 0	2 0	" Parme, French, per bunch	4 0	6 0
Lilium longiflorum, 12 blms.	0 0	0 0			



## PROFITABLE FARMING.

HARD work, very hard work, is done by the "small farmer" of Sussex. With few exceptions he is his own carter, ploughman, and yardman. Early and late he keeps plodding on. From 5 A.M. in summer and an hour later in winter his day runs on till 8 or 9 P.M. in one incessant round of drudgery. No farm labourer works harder—few so hard, and though he undoubtedly complains loudly of hard times, he takes good care that his receipts shall always show a considerable margin over expenditure in the pleasing guise of his balance at the bank. His method of doing this is very simple: it is just to go without a thing if he finds he cannot afford it. Such self-denial is a life-long habit with him, and it is certainly not regarded as a special virtue.

The "small farmer" who achieves a degree of success superior to his fellows is he who is so fortunate as to have a good wife. The *St. James's Gazette* tells us of one prosperous farmer whose wife "was a very capable woman, who never stopped her work a minute whatever visitors came in, or allowed anyone to hinder her. For many years she made £60 a year by her poultry and eggs; used to start at 4 A.M., with a wheelbarrow filled with chicken food to feed poultry in distant meadows, some half a mile off." Nor is this by any means a solitary example of downright resolute effort on the part of women of this class. We could point to many another with which we are intimately acquainted. We know one notable farmer's wife who, with her two daughters, obtains by the proceeds of her dairy and poultry more than enough to pay the rent of her husband's farm of a hundred acres. It is their habit always to be up in the morning by six; nor are they idle of an evening—with them the sewing machine is a household institution, for the daughters are

proficient in dressmaking, and all their clothing is "home made." It need hardly be said that agricultural depression does not bring ruin in its train to such a family. To them we gladly concede a reasonable reduction of rent with far greater satisfaction than ever can be experienced in doing the same thing for the tenant who affects the "fine gentleman," and demands it as indispensable to enable him to keep up his fox-hunting. We write this in no carping spirit, but we would urge upon every farmer the importance of always living well within his means, and of adapting himself to circumstances. Depend upon it, the man who has the moral courage to do this commands the involuntary respect of all sensible people.

We were recently asked to purchase a farm because the owner said he found he could not afford to keep it; he must sell it and try something else. Now this man had passed the greater part of his life upon this farm, had brought up his family there, and was certainly too old to form fresh habits and take up a new calling readily. We soon saw enough of his affairs to convince us that if only he had sufficient sense and courage to effect a radical reform in his expenses to dispense with the luxury of keeping up false appearances, he might not only retain possession of his property, but also earn enough for the reasonable necessities of life, even under the depression.

One remarkable outcome of the depression is a pronounced development of character. The man of energy becomes more energetic, more thoughtful, more teachable; he will not be beaten. His appeal to his landlord for a reduction of rent is couched in such language, and is accompanied by such a clear statement of his affairs, that respect and due consideration is forthwith accorded him. "If I do fail," says he, "it shall not be through poor farming," and he is precisely the man whose samples of farm produce are among the best in the market, who still obtains the highest prices for them, and it must not be forgotten that now a very little more or less per quarter for corn or per head for live stock makes a vital difference between success or failure.

Be it remembered, too, that in these critical times success in farming really means paying one's way. Agreeable as it undoubtedly is to have a heavy balance at the bank, we certainly do not consider that desirable for the ordinary farmer. His capital should be at work, and should be so apportioned as to be always bringing in some quick returns. Farmers must be on the alert to take advantage of every opportunity, and to step out of the beaten track of their forefathers as occasion may require. It is our desire not only to help them, but to enable them to help themselves in matters great and small, and to be really earnest in all they have to do. A short time ago one of our tenants complained to us that he had 600 bushels of Barley so much discoloured by rain that he had only 15s. a quarter offered him for it. Clearly he could not sell it at such a price. What was he to do? We at once said, "Grind it, and get some pigs to eat it," and we were glad to find that he followed our advice; but we may own to a feeling of surprise that so simple a remedy did not occur to him.

The outlook for farmers is certainly a gloomy one. Wheat is at a ruinously low price. Much of a fine crop of Barley was spoilt by rain, the root crop was in many a district a failure. But, as we have said before, the farmer who had the full advantage of the best modern appliances for harvest work had most, if not all, of his corn cut and stacked before the rain came. So, too, with roots. With early sowing on rich highly cultivated land, the roots had so good a start before the drought set in that the crop suffered very little from it. Remember now, too, that in order to insure, as far as one can do, a full crop of hay the manure must be applied before the expiration of the present month. To wait later is really to court failure. A man may occasionally be successful although he is a little late with his work, but tardy practice does not answer long.

(To be continued.)



## WORK ON THE HOME FARM.

During the prevalence of severe frost we have seen much carting of manure being done, and in some instances in a manner to which we strongly object. No doubt it is advantageous to get manure upon the land just now, but distributed in small heaps or spread broadcast over the surface there is a serious loss of its fertilising gases unless it can forthwith be ploughed in. Where ridge-and-furrow ploughing was done in autumn or early winter in readiness for root culture in spring, the manure may be put in the furrows and then readily covered by passing a double-breasted plough through each ridge; but if it has to remain exposed to the air long before it can be covered the loss in fertility will really prove a serious matter. By all means cart your manure to large heaps upon the land over which it is to be distributed, but do not spread it about till the ploughs can be used. Our own horse work has consisted in drawing chalk and gravel to raise and harden the bottoms of yards and for farm roads. Timber, faggots, and poles have been cleared first of all from the grass land and next from out of the woods. Carting of hay and straw to markets is also being done, for since we have ceased filling our cattle yards in winter the amount realised by the sale of fodder is considerable, and we devote no inconsiderable portion of the money to the purchase of artificial manure. Corn-crushing, root-pulping, chaffing of hay and straw requires some extra labour now, for the breeding flock and hoggets make heavy demands upon our supplies of such food now. The lamming goes on briskly and well. The ewes are having an extra supply of bran and crushed Oats. Feed the ewes well, say we, and do all that is possible to bring on the lambs quickly in view of as speedy a sale as may be. It can answer no good purpose to keep a lot of half-fed animals on any farm, nor is it desirable ever to allow them to fall into poverty of condition. There is, of course, a reasonable limit to the high-pressure system of forcing on young stock, but quick development and early maturity must be our aim now. With cows calving throughout winter at the home farm, it answers well to fatten the calves and dispose of them for veal. On the day of writing this note we have been to a large cattle market and seen some calves only moderately forward in condition realise close upon £5 apiece, and at the same sale Irish shorthorns between two and three years old hardly reached an average of £15 apiece. There can be no question that the younger animals were very much the most profitable. Do not overlook the importance of warmth and shelter to all animals now. Glad, indeed, shall we be when lodges and yards become the rule and not the exception on farms generally. Instead of trying how much exposure to wet and cold can be borne with impunity, it would be better to ascertain the amount of benefit derived from warmth and shelter.

## TRIALS OF AGRICULTURAL MACHINERY AT THE KINVER SEED FARMS.

A GATHERING of about a thousand agriculturists and other spectators took place recently at Messrs. Webb & Sons' farm to see the work compassed by the steam threshing machines of Messrs. Ransomes, Sims, and Jefferies, Ipswich, and also of witnessing a ploughing match with their new digging ploughs. In the digging plough brought under the notice of the farmers of the district yesterday it is claimed that an implement is provided which completely breaks up and pulverises the land, dealing with it very much as if it were spade-dug. This is said to be done with less draught than in the case of an ordinary plough, and one of the best testimonials to the merits of the digging plough is that its use is rapidly extending. It was once said by a wag, when appealed to as to the best way of making the most of the land: "Turn it up on end and plant both sides of it;" but, admitting this is utopian, one of the next best ways to get a good crop must be to thoroughly stir up the soil before the seed is entrusted to it. Nearly a score ploughs, each drawn by a pair of horses, were engaged at the same time in parallel lines of work, and the animation of the scene was more like what would be met with on a big Transatlantic farm than in a quiet corner of plodding England. Half a dozen prizes were offered for competition among the ploughmen, and the awards were made by Mr. J. Giles and Mr. W. Trow at the close of the work, with the quality of which they expressed themselves much pleased. The prizes ranged from £2 in value downwards.

Besides the ploughing competition there was an exhibition of the skill of Messrs. Ransomes' "champion ploughman," Barker. He has taken a host of awards at ploughing matches, and proved himself *facile princeps* in arable work. His deftness was shown with a different class of plough to that already spoken of, the one he steered being a "Newcastle" prize plough. It turns a whole unbroken furrow, as Barker guides it, in a line of almost mathematical precision; and the rows of soil turned over were laid side by side at apparently precisely equal distances, and at precisely the same angle. As a piece of clever and scientific ploughing, there could be no question of Barker's accuracy of eye and hand. The land as ridged up by Newcastle plough is just in the best form of being pulverised by atmospheric action and frost before being planted with cereals. On the other hand, the digging plough tears the ground to pieces in a way that adapts it better for root crops. The immediate crop in view determines the point of the best kind of plough to use, and there is naturally some variation in the implement best adapted for different purposes and different soils.

The trial of threshing machinery took place in the rick yard, and a rick of Webb's Kinver Chevalier Barley was operated upon. The capabilities of the finishing threshing machines were exhibited, the one used being a standard full-sized machine, driven by an eight-horse-power portable engine. As a rule, though machines are called finishing

machines, they often require the grain to be passed through twice in order to secure a clean marketable sample. The machines of which the one at work was a type are intended to complete the whole business in one transaction, and to deliver into the sacks at the mouth of the machine as clean a sample of grain as either buyer or seller could desire. When properly fed the full-sized machine will thresh from 600 to 800 bushels of corn per day of ten hours. During a test taken it was found that the machine threshed a sack of Barley in three minutes and a quarter. The machine in use was, as we have mentioned, a standard full-sized one; but we understand that lighter machines are thought preferable in hilly districts, where the question of transfer from place to place has to be considered. In the course of the proceedings Messrs. Webb entertained the visitors at luncheon in a large tent near the homestead.

## OUR LETTER BOX.

**Prices of Manures (B. B.).**—We can only advise you, as we have advised others, to ascertain prices of artificial manures from local dealers, which are to be found in almost every considerable town in the kingdom. If vendors were to advertise manures unmixed they would increase their sales; if they do not advertise no one can expect us to do so for them.

**Sheep with Swollen Lips (J. M.).**—The tongue which you were good enough to send us had so little inflammation that we hope the disease is already passing away. Blain usually presents itself first of all in the tongue, and attention is attracted to it by a free discharge of saliva, at the outset limpid and inoffensive, but soon becoming thickened by a discharge of purulent matter, and fetid. The inflammation soon spreads, the head and neck become swollen, and there is considerable difficulty in breathing. You would do well to examine the mouths of the whole of the sheep, and if any vesicles are found under or along the sides of the tongue, open all of them with a lancet, then wash the mouth first with warm water, and afterwards with the solution of chloride of lime. The disease is infectious, and due care should be taken to prevent it from spreading to other flocks.

**Permanent Pastures (W.).**—Why lose a year for the sake of a poor crop of Clover? If you intend dressing your poor land with farmyard manure do so at once, plough it in with the Clover, and when the soil is sufficiently dry to enable you to get a fine seed bed, do so without the loss of a day, and then sow the grass seed. If you intend using artificial manure take for an acre half cwt. nitrate of potash, three-quarter cwt. nitrate of soda, half cwt. superphosphate, half cwt. steamed bone flour, well mix, sow immediately after the grass seed, and work in with harrows. This will induce a free strong growth upon the young pasture, and you will be able to fold lambs upon it twice before the end of next September, when the lambs must be withdrawn from it for the winter. By passing lambs quickly over it in folds before any of the grasses run to seed you insure the consumption of the whole of the growth without damage to any of it, and at the same time impart additional fertility to the soil in the most economical way. If in the following summer and autumn you pursue the same practice with sheep, always using folds, you will by the end of the season of active growth have a fairly well-knit pasture suitable either for grazing purposes or hay.

**Artificial Manures (J. H. W.).**—The names cannot be put in plainer English: indeed, to alter them at all would confuse rather than instruct. They are well understood by dealers in manures, and you can procure prices from those in your neighbourhood. We do not suppose you have the means for steaming bone meal, and you may very safely use it as it is. This also answers the letter of "W. C." We can neither quote prices nor recommend dealers who do not advertise their goods. All the constituents referred to in the formula are included in the fish potash manure that is advertised in another column with the prices appended. We intend trying both, and we suspect you will have little to lose by doing the same. We know one is good, and have a strong impression the other is good also, and easily procurable.

## METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 6° 8' 0" W.; Altitude, 111 feet.

DATE.	1886. February.	9 A.M.					IN THE DAY.				
		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		Rain
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Sunday	7	30.392	29.2	27.6	E.	35.3	deg. 35.5	deg. 26.4	deg. 47.6	deg. 19.6	—
Monday	8	30.734	28.7	27.1	E.	34.8	deg. 32.4	deg. 24.9	deg. 39.7	deg. 20.3	—
Tuesday	9	30.715	24.2	24.0	E.	34.4	deg. 31.8	deg. 20.8	deg. 33.4	deg. 17.3	—
Wednesday	10	30.565	24.9	24.6	Calm	34.2	deg. 34.8	deg. 19.4	deg. 52.6	deg. 14.7	—
Thursday	11	30.220	33.9	32.3	Calm	33.8	deg. 37.4	deg. 23.6	deg. 39.2	deg. 23.2	0.066
Friday	12	30.027	39.3	38.9	S.E.	33.7	deg. 42.3	deg. 29.8	deg. 47.4	deg. 31.6	0.043
Saturday	13	29.957	41.4	40.9	S.	33.7	deg. 47.7	deg. 35.9	deg. 57.4	deg. 28.6	—
		30.364	31.5	30.8		34.3	deg. 47.4	deg. 25.8	deg. 45.3	deg. 22.2	0.109

## REMARKS.

7th.—Fine, but without bright sunshine.

8th.—Cold and fine, but rather hazy.

9th.—Slight fog early, very dense from 9.30 till about 11.30; slightly foggy during the rest of the day, and intensely cold throughout.

10th.—Dense fog in the first part of the morning; fine and bright after; fog again at sunset and in the evening.

11th.—Dull and foggy all day.

12th.—Rain in the small hours, and slightly foggy with showers throughout the day.

13th.—Dull, with showers early.

A week divided into two periods of typical winter weather—the first dry and cold, with dense fogs at the beginning and close of each day: the second dull, damp, and raw, with almost continuous slight fog. The temperature is about 7° below the average, and the lowest for any week since January, 1881. In London there were three or four days safe skating, a very unusual occurrence in February.—G. SIMONS.





## COMING EVENTS

25	TH	Royal Society at 4.30 P.M.
26	F	Quekett Club at 8 P.M.
27	S	Royal Botanic Society at 3.45 P.M.
28	SUN	SEXAGESIMA.
1	M	
2	TU	
3	W	Society of Arts at 8 P.M.

## SPRING PLANTING.

**W**HILE the winter of 1885-1886 cannot, perhaps, be described as of great severity, it has undoubtedly been of protracted duration. It came early and appears to depart reluctantly. The long term of intermittent frost, snow, and wet has been the reverse of advantageous in various ways. Work both in trade, especially the building trade, and on the land having been seriously obstructed, has been inconvenient to capitalists and almost disastrous to operatives. The work in connection with the land that has been the most delayed is that of planting. No doubt the general routine of the farm and the garden has been more or less arrested, but it is to be remembered that a period of frost is specially favourable for the quick and economical conduct of what may be described as work on wheels, which can never be done in the cheapest and best manner in "soft" weather. The frost also has had a beneficial influence on land generally, whether pasture or arable in fields, or dug or undug in gardens; indeed, in the case of very light soils in gardens it is a question if a good frost is not as beneficial as a good digging, and it will be conceded it is both easier and cheaper. When the land is quite clean, and of such a light or sandy nature as to dry quickly and excessively, it will be as well, possibly better, for the majority of crops if it is not dug to any great depth, or only for the sake of appearance and covering any manure that may be added. Even the digging of much heavy land may be postponed with advantage rather than otherwise till dry weather in the spring, as there is nothing gained by forcing on such work under unfavourable conditions, or when the surface is wet. "Dig and crop as you go on," is often the best practice in heavy soil that was not turned up in autumn. A great deal of ordinary digging may therefore be postponed without anything serious occurring if other work of an important character presses, such, for instance, as planting.

There is no doubt that a great deal of planting both of fruit and forest trees would have been done during the past three months if the ground had been dry and open instead of wet or frozen. It is quite certain, too, that it is desirable alike in the interests of owners of estates and of the general community that the more extensive occupation of land with trees should be systematically adopted. There are thousands of acres of comparatively barren, and at present absolutely useless land, in various parts of the country that might be made profitable by the cultivation of Larch and other trees for which the soil is naturally adapted, and it must be very poor and sandy indeed if it will not grow Scotch Fir; also excessively wet if Ash and Poplar will not thrive. The home timber supply is getting scarcer and scarcer, and foreign cargoes will get dearer and dearer. The resources of this country, old as it is, are not nearly developed in the growth of timber, and it is not unlikely that the time will come when something like a panic will take possession of the minds of men on the question, and bitter regrets be experienced that

planting was not extensively conducted a generation previously. The planting of waste land with timber trees that cannot in any other manner be so well turned to profitable account is a matter demanding serious consideration as to the selection of the most appropriate kinds for the soil and locality, then prompt action in planting. Some far-seeing owners of waste land are alive to the importance of occupying it in the manner indicated; but the great fact remains that there are thousands of acres of positively no value now that might be occupied with thrifty plantations that would "grow into money" in the course of a very few years.

It is the same in respect to fruit. More ought to be grown at home, and grown better than at present, or rather the bulk of our market Apples, for instance, ought to be fat and juicy, like those which win prizes at shows. There is no fear of these waiting for customers. They are the produce of healthy trees in generous soil. Nothing, it is said, strikes American visitors to our shores as more strange than either the absence of orchards near homesteads or the half-worn-out old grandmother-like trees that happen to exist. One of those visitors, a most attentive observer, and an admirer of many things in the old country, was impelled to record:—"Notwithstanding England is such a garden, neither did I see any gathering of Apples in October, nor orchards from which to gather them. 'As sure as there are Apples in Herefordshire' seems to be a proverb; yet it is very certain that the orchard is not the institution anywhere in Britain that it is in America, or so prominent a feature in the landscape." That this is in great measure due to the state of the law can scarcely be disputed. Landowners as a rule (for there are a few exceptions) will not plant fruit trees, not even in some instances to adequately meet the requirements of their establishments, and tenants, except under long leases, are not justified in doing so in any systematic manner, because they would be sowing for others to reap who are not of their own kin, besides subjecting themselves to the extraordinary penalty, the truly "extraordinary tithe." Yet, notwithstanding those natural, or unnatural, impediments, more fruit trees are being planted than formerly, and will be planted, as a set-off against past negligence, and as a necessity for maintaining even a moderate supply of fruit, which old trees cannot much longer possibly afford, to say nothing about the inferior varieties that cumber the ground. The wholesomeness of fruit, its nutritious properties and medicinal qualities, is being more and more appreciated, and the consumption will increase all the more rapidly as the quality of the produces increases under better culture and the exercise of sound judgment in the selection of kinds and varieties that meet alike the public taste and that thrive best in certain localities, or in which they appear to be naturally at home.

There should not only be no cessation in planting fruit trees so long as land remains to be occupied by them, but the work should be pressed on with all the force available. It has become almost a habit for writers to urge the importance of autumn planting with the object of "saving a season." Not a word is here said against planting fruit trees in November, and in the case of moving large trees from one position to another in the same garden a season may easily be gained by doing the work in the autumn; but in the case of young trees, fruit, forest, or ornamental, obtained from nurseries, it is very questionable indeed if a season is gained by the practice recommended, whereas it is very certain a season may be easily lost by omitting to plant now—that is deferring the work till another year, and obstacles then intervening, as they do every autumn, to prevent the work being done in November. The advantage of planting in autumn consists in the warmth still lingering in the soil inciting the formation of fresh roots before winter; but if the work drags on, as it often must do, through December, there is no rooting before winter, and there is nothing gained over planting in February, or even early March in a backward season, provided special care is taken to prevent the roots of



the trees drying in transit, planting is well and carefully done, and pruning prompt and rather severe.

Dryness of the roots of trees obtained and planted in spring is the primary cause of failure, the trees either dying or struggling to keep alive instead of growing satisfactorily. It has fallen to my lot to see thousands of Larch and other trees ruined through the exposure of their roots during a long journey in spring when a dry air and brisk wind prevailed. Trees selected from the bulk that by some accidental cause had not their roots dried have been planted and grew; an equal number with dried roots planted between them died. When trees arrive with the fibrous roots resembling dried hay, and there is no alternative but to accept them, the best plan that can be adopted is to immerse the bundles in a pond for two or three days. Many of the fibres will probably freshen, and those that do not should be cut clean off to where the stouter roots are fresh, and plant before these get dry again.

When trees are purchased in the spring, moist roots on arrival should be a condition of acceptance; and when they are kept moist till planted under favourable conditions fruit and forest trees of all kinds, Roses and shrubs will grow as well planted now and during the next few weeks as if they had been put in in December just before the frost. I had some Roses planted in the month just mentioned but the work could not be completed, and the remainder are still "laid in." They will be planted soon, and I am as positive as I can be of anything that they will grow just as well as the others; and so they would if they were fruit trees.

Plant trees now, but do not prune till the sap rises in spring, is advice often heard. It is given on the assumption that leaving the branches entire, or nearly so, accelerates the production of roots. This might possibly be so if the branches were always wet, but it certainly is not if they are exposed to several days of drying easterly winds that are so common in early spring. The wind acting on the surface of the bark extracts the moisture from it, and the greater the surface exposed the greater is the loss. Some Roses were planted last February, with growths ranging from 2 to 4 feet long. Some of them were not pruned at all, others being shortened more than half their length, and cut more closely towards the end of March. The pruned plants grew and flowered satisfactorily; some of the others died, and not one made anything approaching vigorous growth. The dry winds acting on the long shoots did the mischief. This only confirmed previous experience. Keep the roots of trees moist in transit, or while out of the ground; plant carefully now, or when the ground and weather are favourable; stake securely, prune, and with such after attention as circumstances may dictate trees will grow well. In the case of standards planted against south walls, or in fact, anywhere else, the advantage of wrapping damp haybands round the stems, and keeping them damp, is perhaps not sufficiently appreciated by everybody.—EXPERIENTIA DOCET.

### ECONOMICAL AND SUCCESSFUL DAHLIA CULTURE.

MANY people object to growing Dahlias because they occupy so much ground. When I began cultivating them I felt I could not spare the ground, but I overcame that difficulty by planting early Potatoes on it. I always grow them on the same ground year after year. One reason is because I cannot get shelter from the wind in any other part of my garden; and the other is, the ground being manured and the plants mulched every year, it is in better condition to grow the plants to perfection.

My method of utilising the ground to best advantage is to get it well manured and dug by the middle of March, and then draw deep drills 4 feet asunder to plant the Potatoes in. They should be well sprouted and a short stake placed at the end of each row. I find Myatt's Prolific the best, and it is astonishing what a heavy crop I get in this manner. They should have their final hoeing before the Dahlias are planted—that is, the last week in May or first in June. If the weather should be frosty the latter date will be the best. I drive the stakes for Dahlias between the rows 5 feet apart and put

the plants about 6 inches from the stakes. As soon as the planting is done I get some sturdy Lettuce plants, and plant two or three between each pair of Dahlias to attract the slugs. These are visited by "moonlight" if available. Nothing but these nocturnal walks will cope with the pests.

About the first week in July I commence lifting the Potatoes for use as required, taking up those first that are likely to crowd the Dahlias. By the end of the month I take all the Potatoes up, level the ground, mulch the plants, and place a stake to each strong shoot, cutting out the weak ones, and well mulch the plants, beginning to disbud as soon as the buds are visible. After this time I water the plants twice a week and sprinkle the foliage every night if I can find time. I always endeavour to get buds on each plant in different stages of growth to have blooms for all the shows I want to exhibit at. I find those just unfolding their petals a fortnight before the date they are required are mostly in form for show.

All cultivators find earwigs very troublesome. I can never find time for wrapping them, but put all the best shaped buds into muslin bags as soon as they begin to show colour, taking them off a day or two before the show, and, tying a little moss below the blooms, they very seldom get past that. I am most particular at this stage to keep the plants watered over the foliage every night. They do not like getting on the wet foliage, and clear water does not hurt the blooms. When I first began exhibiting people used to talk very much about dressing the blooms. I have lived long enough to know if the flowers are not well grown no amount of dressing will make them fit for exhibition. If by chance a petal should get eaten or split it should be removed with the tweezers and the adjoining ones pressed round to fill up the space.

I hope as the season advances our veteran grower, "H. G." will favour us with some cultural notes; but Dahlia growers have little time for writing from June till the middle of September. And, now, Mr. Editor, if any of your readers object to this system of cultivation, I have only to say that by it in 1884 I succeeded in gaining eleven first and two second prizes, including a first at the National Show against fourteen competitors. Last year I did not exhibit at so many shows, but was awarded seven first, three second, and one third prize, and had the premier bloom at the National Show.

I hope to see the above-named Society in a more flourishing state. At present it is languishing for lack of funds. I append twenty-four Show and twelve Fancy varieties that will come a good size with moderate cultivation and suitable for beginners, which is the object of my troubling you with this.

Twenty-four Show varieties, in order of merit:—Mrs. Gladstone, Hon. Mrs. J. Wyndham, James Cocker, John Henshaw, Goldfinder, Joseph Ashby, Clara, Vice-President, Ethel Britton, Wm. Rawlings, Flag of Truce, Earl of Ravensworth, Miss Henshaw, Sunbeam, John N. Keynes, George Rawlings, Mrs. Jeffard, Constancy, Julia Wyatt, Miss Cannell, Mrs. Langtry, Prince of Denmark, Hope, and Rev. J. Godday.

Twelve Fancy varieties, in order of merit:—Flora Wyatt, Professor Fawcett, Romeo, Rev. J. B. M. Camm, Lotty Eckford, Grand Sultan, Mrs. N. Halls, Fanny Stuart, John Forbes, Miss Browning, Chorister, and Oracle.—J. T.

### NOTES ON TOMATO CULTURE.

THAT Tomatoes are "grown" in some establishments and "cultivated" in others is a fact well known to many members of the profession, especially those who are in the habit of visiting gardens, both large and small, and comparing the results obtained by this or by that practice.

Much diversity of opinion prevails in respect to propagating Tomatoes either by cuttings or seeds. Having at one time a decided inclination for cuttings, it was our practice to get a large stock struck early in the autumn for winter and spring fruiting; but were not long in relinquishing that system when a very decided decrease in our supply was apparent—in one instance owing to the cuttings developing the disease (Peronospora), and in the other to clubbing of the root, the consequence being the dying of the points of the shoots in a very aggravating manner as the spring advanced. But since discarding all old plants and cuttings therefrom our difficulties have considerably diminished.

We have found it a good plan to sow the seed in pans the second week in August, and place the seedlings into 4-inch pots as soon as ready, by about the middle of September, when the strongest are selected for shifting into 7-inch pots, using some sound loam for that purpose, fibrous loam not being necessary. Moderately firm potting will be essential to promote a sturdy and fruitful growth. A stake not more than 18 inches long is supplied to each, and the stems secured thereto, when they are removed to a light airy position close to the glass, generally a shelf in an early Peach house. In a short time they will all simultaneously produce trusses of



bloom, which with proper attention to watering and an occasional tap of the stems set from four to six good fruits. As soon as they are swelling fairly the plants are removed to a house in which a mean temperature of 65° is maintained. Here narrow borders of loose bricks filled with loam are formed, the dimensions generally being 18 inches wide and 12 inches deep, in front of and running the length of the house, the plants being turned out 1 foot apart and tied to the trellis. All side shoots being strictly removed no overcrowding or confusion of growth can occur. Under these conditions the fruits swell rapidly to a large size, and with an average amount of sun can be depended on to supply several good dishes during the latter part of December and onwards. Those plants remaining in 4-inch pots after the first selection are shifted into 6-inch pots somewhat later, and so remain in a light position in an intermediate house until early in the new year, when they are treated similarly to the foregoing, and the result is abundance of early fruits of large size and good quality.

Of the superiority of the single-stem or cordon system over the spreading or scrambling mode of training there is not, in my estimation, a shadow of doubt. A striking instance of the success of this system I recollect seeing a season or two ago illustrated in a very forcible manner in the gardens of Lord Wolverton at Iwerne Minster, Dorset, where, in one of the extensive ranges of glass Mr. Davidson had recently converted a cold orchard house into a heated vinery, and, being the first year, had planted the back wall (some 60 feet long and 13 feet high) with Tomatoes on the cordon system. The result was Tomatoes in the most extravagant abundance. The sight of the large fruits hanging in enormous clusters one above the other, which to my mind resembled strings of Onions, was a sight not easily forgotten.

Such convenience is so seldom attainable that a more generally practicable method is to place two strong plants in a half-bushel pot, with a good space left for watering, and stand close together on the staging at the ends of vineries or Peach houses and such-like places where most light can be obtained, and secure the stems to wires fixed to the sashes. In late vineries they can be staked upright and the pots placed in rows on the inside border, where, after perfecting a crop of fruit before the shade from the Vine foliage becomes too dense, they can be removed to a warm corner outside, and the pots being well packed round with plenty of long stable manure and the stems fastened to the wall, they will quickly produce a further supply of fruit and continue to do so until the autumn.

Where a house is devoted to their culture, the use of borders or pits formed with loose bricks has much to recommend it in preference to pots, the chief feature being the ready means afforded of giving the plants fresh root room when they show signs of exhaustion by taking down one or both sides of the pit and placing the bricks at such a distance as seems desirable, filling the intervening spaces with fresh soil, which the roots will soon take possession of, and renewed vigour and fruitfulness will result.

In whatever position, or under whatever system the plants are grown, a liberal supply of water—the chief essential to their well-being—must constantly be applied according to requirements. As a pot plant I do not know of another so thirsty as the Tomato, which semi-aquatic propensity is, I suppose, to be accounted for in the peculiar formation of the leaves being such as to enable them to rapidly evaporate the supplies administered. On one occasion I tried an experiment with the supposition of the Tomato being a semi-aquatic plant, by placing four in a zinc trough 3 feet long, 15 inches wide, and 5 inches deep, partially filled with soil and perfectly watertight, and trained on the cordon system to the back wall of a vinery in a light position. From the first the plants made satisfactory progress, set and ripened large clusters of fruit, and succeeded generally as satisfactorily as others in the same house in half bushel pots. An interesting feature in the experiment was observing the rapidity with which they would imbibe the water that was often standing half an inch above the soil after watering, there being, of course, no outlet for it. I may add that they did not require watering more frequently than those in large pots, and also that liquid manure was occasionally administered. Many gardening friends on seeing them evinced considerable surprise at the small amount of soil, the more so as there were but few surface roots, as to doubt the fact of the roots being confined within the trough, and only on lifting it clear of the ledge on which it stood would be convinced, when they came to the same conclusion as myself, that it is not the amount of soil that is of so much importance as the amount of moisture contained therein. Since performing this experiment I have been informed that a member of the profession holding a high position in regard to horticultural matters was pursuing experiments in somewhat the same line—viz., by rendering watertight the bottoms of the pots with a layer of cement. What the results of his experiments are, I am sure, would

be welcomed by many interested in the culture of this deservedly popular fruit.

As to varieties, many would-be cultivators are often puzzled to determine which to select of the multitude of sorts, which, with such marvellous descriptions attached (correct or otherwise) swell the lists of many seed-vendors' catalogues. Amongst a number of sorts grown on trial, Dedham Favourite has proved itself a superior and reliable variety for summer or winter under glass and outside during summer, a good cropper, handsome in appearance, and excellent in quality.—M. COOMBE.

## THE PRIMULAS.

(Continued from page 117.)

*P. OLGE*, *Rgl.*—A new species, discovered by Dr. Regel of St Petersburg, and figured by him in the "Flora Turkestanica." It was at one time in cultivation in the St. Petersburg Botanic Garden, but we believe has since been lost; a fresh supply of seed has, however, been obtained, and we may soon hope to see it in English gardens. It is said to be nearly allied to *P. nivalis*, *Pall.*, and judging from the coloured drawing in the above work it promises to be a great acquisition to our list of Primulas. It is found at about the same elevation as *nivalis*, which fact may be a guide to its culture. It grows 3 or 4 inches in height, terminating in a few-flowered umbel of charming rosy-lilac flowers resembling but larger than *P. sibirica*; the blooms are over half an inch in diameter, leaves obovate oblong, tapering to narrow winged petioles, glabrous, and shiny on both surfaces. Native of the high mountains of Western Turkestan at 7 to 12,000 feet above sea level.

*P. PALINURI*, *Pet.*—Of the few Primroses having a truly arborescent habit of growth, not even excepting the charming little Californian *P. suffrutescens*, none approach this gigantic species (which has been not inaptly compared to a luxuriant plant of *Sempervivum arboreum*), either in height or proportion of stem when it is allowed to fully develop itself. It is perhaps the least amenable to pot culture of all the Primulas we are acquainted with, and although it may be had to do well for a year or so the final result is seldom if ever satisfactory, the flowering being much impeded. When bound in small confines of a pot the leaves curl, rust, and become disfigured, the plant being generally unsightly before flowering time, if it develops flowers at all. The real cause of this may have been insufficient food, as it seems to be a voracious feeder, and as large pots are required to grow it well this is not always convenient where space under cover is limited. The best plan, it would appear, to get the full advantage of its flowers as it opens towards the end of February and beginning of March would be to plant it in a border in the conservatory as recommended for *P. japonica*. If a sheltered spot can be found in the open it will do well; and even in the ordinary border in late seasons it rarely opens its flowers until all danger is past. A sunny position should be chosen, and in the growing season it may be attended to with abundance of water. *P. Palinuri* is supposed to have something to do with the present development of the garden *Auricula*, as well as *P. Auricula* and *P. pubescens*, and as far as appearances go it is not at all unlikely. It has generally a stem rising several inches above the ground, deeply marked with the old scars of the former leaves, an inch or more in diameter, the fresh leaves forming tufts at the summit from 4 to 6 inches long, obovate spatulate, irregularly and deeply toothed at the margin, to where it tapers sharply to the base, glabrous (not shiny) and without farina on either side. The scape, instead of coming from the growing point, as in most of the others, proceeds from the base of the lower leaves carrying a head of from twenty to forty large pale or lemon yellow flowers, the calices densely covered with powder. A native of *Palinuri*, near Salerno, Italy, and flowering March and April.

*P. PARRYI*, *Gray.*—Undoubtedly the handsomest of all the New World Primroses, and indeed comparing favourably with the much-esteemed *P. japonica* and *P. nivalis*. It was first introduced by Mr. Thompson of Ipswich about 1861, who distributed it freely, but without much success as regards cultivation, as it became almost extinct soon after, and was reintroduced a dozen years later by Mr. Backhouse of York, and by whom it was flowered in 1871. We also saw it in flower in the new rockery at Kew last year. Perhaps the failures to flower, and even to grow it, may be attributed more to the want of water than adverse climate and other effects, for since following Dr. Parry's directions, planting it beside a pool or stream in the coldest and most exposed place available, it has grown vigorously, and two of the two-year-old plants flowered last year. It supplies a colour much wanted in Primulas, and under the above conditions it gives no trouble whatever. It appears to be widely distributed, and from this fact Dr. Gray suggests the possibility of its being a form of *P. nivalis*, which indeed it much resembles. The flower scape grows about a foot high from the middle of a dense tuft



of oblong or oblong lanceolate succulent leaves, varying in length from 4 inches to a foot, obscurely toothed, or in young leaves quite entire at the margins. The flowers are collected in a loose head surrounded at the base by short pointed bracts, varying from a dozen to twenty, an inch or more in diameter, bright red or crimson purple, with a large yellow eye. Calyx cup-shaped, glandular, and often reddish tinted. It is found on the margins of Alpine brooks, through the higher rocky mountains of Colorado to those of Nevada, and even to Arizona on Mount Lincoln as high as 13,000 feet above sea level. It flowers May and June.

*P. PEDEMONTANA*, *Thom.*—The Piedmontese Primrose seems to be one of those difficult customers anent which doctors differ. All the leading authorities seem to agree to its belonging to the Auricula group, and a close ally of *P. viscosa*, though all differ as to its true position, and whether it deserves specific distinction. In De Candolle's "Prod." it is included under *P. villosa*, *Jacq.* In Reichenbach's "Fl. Germanica" it receives specific distinction, with *P. pubescens*, *Jacq.*, and *P. villosa*, *Jacq.*, as synonyms. In Wyman's "Conspectus Europæus" it is also made a species, with *P. Bonjeana*, *Heug.*, as a syn.; while in Mr. Baker's preliminary list it is included under *viscosa*, *Vill.*, and which I believe is made to include *P. villosa*, *Jacq.*, but not *P. pubescens*, *Jacq.*

So far as we have noticed this plant under cultivation as regards appearance and habit of growth we would be inclined to isolate it



Fig. 24.—*Primula pedemontana*



Fig. 25.—*P. pedemontana* var.

from all the others, for however near in botanical affinity it may be to *P. viscosa*, which is made to include a host of plants which gardeners consider distinct, as a garden plant it is distinct, so much so as to warrant a separate name. It would seem to be a variable plant under certain conditions; hairy or without hairs; in some almost entire leaves, while others are distinctly dentate, those received from Mount Cenis being hairy with the margins almost entire, while those brought home by Mr. Maw from the Piedmont have entire leaves almost devoid of hairs, and resembling *P. integrifolia* in habit. It is an admirable plant for the rockery, where it thrives well on a western exposure in rich shallow soil well drained, and where it never fails to give an abundance of flowers. The rosettes of leaves are formed close to the ground; leaves oblong or obovate, obtusely toothed or not, the margins covered with glandular hairs, in some few. The flower stem rises 1 or 2 inches high, carrying a large globular head of medium-sized pretty rose-purple flowers, often pale lilac with a yellowish centre. It flowers with us in April. Native habitats high Alps of Piedmont and Switzerland, where it is said to be one of the most lovely plants of those regions. Increased by division. Syn., *P. Bonjeana*, *Heug.* It is also suggested as being a hybrid *P. hirsuta* × *glutinosa*. There seems to be nothing, however, in favour of this.

*P. PENDULIFLORA*, *A. Kern*, we have not seen in flower. In leaf it much resembles *P. sikkimensis*, and is doing well with similar treatment.

*P. PETIOLARIS*, *Wall.*—An Indian species of extreme variability, if one may judge by the numerous varieties to which it has given rise, and likely in the hands of hybridists and careful cultivators to give a fresh lease to this class of plants. The leaves are mealy

or not, varying from 2 to 10 inches long, ragged, toothed, or crenate, and of two distinct forms often on the same plant, either broad obovate, without stalks, and narrowed into a winged petiole, or elliptic or cordate on long slender stalks. The flower stalks are about a foot high, surmounted with numerous large, purple, white, or pink flowers. It likes shade in a rather damp peaty soil, flowering in autumn. Temperate Himalayas Simla to Bhotan, at from 4 to 14,000 feet above the sea level. All the forms or varieties are said to run into one another in all sorts of ways. Syn., *P. cushia*, *Hamilt.*; *P. tridentata*, *Don*; *P. sessilis*, *Roxb.* Varieties, *Nana*, *Stracheyi*, *pulverulenta*, *sulphurea*, *scapigera*, and *Edgeworthii*.

*P. PEYRITSCHII*, *Stein*, is said to be a hybrid (*P. sub-Auricula* × *viscosa*, *Stein*), and answers to the *P. viscosa* var. major of English gardens. It seems to us no more than a robust variety of *P. viscosa*, and will be treated along with that species.—D.

## VARIETIES OF MELONS.

LEST Mr. Iggulden should think silence discourteous I accede to his request, though I do not claim any special knowledge of Melon lore. During some years past I have only grown named varieties as a test of my own seedlings, and I have grown or seen most if not all those honoured with a certificate by the Royal Horticultural Society, in order to estimate the advance made in constitution, free bearing, size, appearance, and quality, and to transfer these advantages to my seedlings by cross-fertilisation.

Those that have struck me as highly deserving of the honour of a certificate and pass to public favour, I have found to be Little Heath for hardiness, Golden Gem, Eastnor Castle, Read's Scarlet-flesh, Colston Basset, Exquisite, William Tillery, High Cross, and Blenheim Orange. All are first-class fruits, great advances in size and appearance on older varieties, but in quality I do not think any advance whatever has been made—none in green-flesh having the high quality of Egyptian or Pine Apple, and in scarlet-flesh varieties Scarlet Gem is unapproached. I do not wish it to go forth that an Egyptian is to be preferred to William Tillery, or a Scarlet Gem to a Blenheim Orange from an economic point of view, but as a connoisseur there is no question as to which way the leaning would be. By increasing size we lose quality, though some hold the contrary opinion, alleging that cultivation and quality go together, though it would not require any great effort to prove the falsity of such reasoning in Apples, Pears, Plums, Grapes, and especially Melons. This is often exemplified in a marked manner on the exhibition table, a medium-sized fruit of some old and neglected variety carrying off the prize from very much larger and finer-looking fruit. I, however, like something to look at—a handsome shape, whether round or oval, and beautiful in colour, netting, and ribbing. Such make a show at table and are esteemed.

Melons, as most growers are aware, run in types. The types, however, are so intermixed by cross-fertilisation as to be somewhat difficult of recognition, and some are very apt to revert back to the type, though seldom all at once, but in gradations of the forms on both sides of the parentage, advances, so far as I have observed, being on the male side, whilst reversions take place for the most part on that of the female. Beechwood is almost the only original Melon now cultivated, though we occasionally see Egyptian, Pine Apple, and Cashmere. Cantaloup is seldom seen, or Rock, and Windsor rarely puts in appearance. The latter types, however, are common enough in scarlet-flesh, indicated by the round fruit and the ribs, whilst the Egyptian is shown by the stripes or bands dividing the ribs; indeed the parentage of most is legibly marked on the surface, or sufficiently to admit of an identification of their origin.

Beechwood, originally from Persia, is an oval fruit and netted, which by cultivation developed into a bluntly oval fruit, and in good examples becomes almost round; in fact I have had it quite round, which I particularly wish to note, as all Melons advance in proportion as they put on the round or spherical form. Oval Melons cease being pointed and become blunt-ended, or what we term bluntly oval; and round Melons cease to have the ends flattened, and become as rotund at the ends as in the middle. This alone results from cultivation and selection; indeed quite as much is effected by selection of the highest forms as by cross fertilisation, the latter being very tantalising when we come to in-and-in-breeding, everything depending upon the selections.

Beechwood crossed with Victory of Bath (a form of Bromham Hall) resulted in Eastnor Castle, and this, when care is taken in selecting the seed from the bluntly oval and well-netted fruits, is an excellent variety, but it has a tendency to give pointed oval fruit, ribbed, sparsely or not netted, and the flesh of this form is coarse, soft, and poor in flavour. The latter is a reversion to some type clearly on the female side in form, whilst the loss of appearance is on the male side; and reversions always are marked by vigour of constitution, being inherent in the female, though a languishing plant may be rejuvenated by crossing with a vigorous variety. Beech-



wood crossed with Read's Scarlet-flesh gave a round coarsely netted scarlet-fleshed fruit, and a green flesh even more coarsely netted, neither having any quality of note. Beechwood × Read's Scarlet-flesh × Victory of Bath gave several forms, one a round fruit, closely and evenly netted, flesh green, rich and good, very free bearing, and hardy constitution. This I named North Durham (Seedling No. 1), and sent fruit to the Fruit Committee; but it was passed, therefore I suppose worthless, though it was liked better than any named sort by my employers and their friends. I have flattering accounts of it from those to whom I have given seeds, and I still find it unequalled as a green flesh of handsome appearance, pleasing quality, free cropping, and healthiness of plant for frame culture.

Beechwood × Read's × Victory of Bath × William Tillery gave a bluntly oval fruit, slightly ribbed, banded or quartered like Egyptian, finely netted, very handsome, flesh green and highly flavoured, even to cloyishness; and though free in growth and setting, it is tender, being very susceptible to damp, and subject to exudation from the whole plant and fruit, a peculiar characteristic of the Cashmere, Afghan, and Ispahan Melons. The bands between the ribs are greyish or silvery green, as in Egyptian. It requires dry or house culture, being unsuitable for moist or frame culture. This I named J. Wright (No. 3 Seedling), from his known preference for Beechwood, it clearly being an amalgam of Persian and Egyptian Melons.

I crossed Golden Gem with Read's Scarlet-flesh, and obtained a very beautiful fruit, bright gold in colour, the white netting being very much more decided than in Golden Gem. Flesh salmon, flavour poor in summer, but in autumn rich. Though both the parents were round the fruit is oval in shape, like Ispahan. It is very decided in character, and is a reversion on the female or Golden Gem side towards the original, Golden Gem by its exudations alike from plant and fruit being of Cashmerian origin. It also gave a variety with white flesh. With a view to obtaining a hardy-constituted Melon I crossed Little Heath (which, though a much-abused variety, is very serviceable for cold frame culture) with Beechwood, in view of a green flesh, with the hardy character of Little Heath, with a satisfactory result; but those not caring for Little Heath would not take to this, as the quality is not high as compared with some other varieties, though when well ripened I have found both Little Heath and the cross-bred seedling from it excellent.

Earl of Beaconsfield, a sorry edition of that mongrel Netted Victory, both remarkable for the absence of netting, and having a coarse soft flesh, I crossed with North Durham, and have a large, round, ribbed fruit, heavily netted, flesh green and highly flavoured. It is a very free, early, and continuous bearer, doing well under frame treatment. It ought to make a good market sort. I named it W. Iggulden (Seedling No. 6), out of compliment to his expressed liking for a netted Victory of Bath. The ribs are those of Bromham Hall, and its grey bands are Egyptian, though there is none of its blood in the parentage, but I conjecture Bromham Hall resulted from crossing Cantaloup with Egyptian.

Beechwood × Golden Perfection (still one of the very best Melons) resulted in an oval, coarsely netted, green flesh, of high flavour. Pine Apple × Osmaston Manor gave a scarlet flesh, very solid, high flavour, finely netted fruit. Pine Apple × Eastnor afforded a green flesh, high quality, very slightly netted fruit; this I crossed with North Durham so as to secure a well-netted handsomer fruit. Eastnor Castle × Exquisite presented a green flesh, as might be expected, of very high flavour. Blunsdon Abbey × Pine Apple × Eastnor Castle gave a bluntly oval fruit, sparsely netted, and sweet. I mention these as I shall refer to them again presently; but to continue it is necessary to state that I at one time grew Moreton Hall, a small bluntly oval fruit, red flesh, very solid, and when well ripened excellent flavoured; but it cracked fearfully, and to cure this crossed with Ferme's Seedling and Oulton Park. I did not like the result of the Ferme Seedling, but the Oulton Park gave a fruit that did not crack, and was very closely netted. The seeds were brought out day after day through the fruit, surpassing all others in quality. I named it Grinkle, yet it being so small, scarcely a pound weight, it was crossed with Colston Bassett, still one of the very best, and had a bluntly oval fruit, coarsely netted, in both scarlet and green flesh, and indifferent flavour. The green, or rather white, flesh being selected it was crossed with Golden Gem, having a beautiful-looking fruit, gold, covered with white netting, and a flesh first green next the rind, then pink, and white next the core—seed cavity pink. It was of no flavour, therefore crossed it with Exquisite, which resulted in a round or very blunt oval, coarsely netted, heavy fruit—i.e., for its size, 2 to 3 lbs., flesh green, firm, melting, and very rich. I named it North York (Seedling No. 2), but nobody liked it, evidence of my peculiar taste in Melons at least, for I do not find it differ from other fruits. Moreton Hall × Oulton Park × Colston Bassett × Golden Gem × Beechwood has a small fruit; flesh white, tinged with pink. Moreton Hall, up to and including Golden Gem

× Pine Apple × Eastnor Castle, furnished a well-netted green flesh of high flavour.

I come to an amalgamation of North Durham × North York, green flesh, solid, 2 to 3 lbs., coarsely netted, round, named Our Journal (Seedling No. 4); Pine Apple × Osmaston Manor × North York (Seedling No. 7); female North Durham × male Pine Apple × Eastnor Castle (Seedling No. 8); female Osmaston Manor × Pine Apple × male Pine Apple × Eastnor Castle (Seedling No. 9); female Pine Apple × Eastnor Castle × male North Durham (Seedling No. 11). The three last it will be obvious to get size in combination with quality, and to get quality, irrespective of appearance; female Blunsdon Abbey × Pine Apple × Eastnor Castle × male North York (Seedling No. 12). I do not suppose anybody would care to grow any of these, and if inclined to follow such a system of in-and-in-breeding I advisedly say "don't." True we get capital varieties always, but no reliance can be placed on any of them, though by selection of those most constant in character something may result with a continuance true to character. The best that can be said of them is "very interesting to growers of their own Melons." Golden Queen × Moreton Hall to Golden Gem inclusive (Seedling No. 10) as might be expected is very variable.

To give stamina to J. Wright as a frame Melon I crossed it with North Durham (resulting in Seedling No. 5), also with High Cross, as there is no difficulty in getting quality in hot-water-heated structures; but in frames it is very different, so much being dependent on the weather at the time of ripening. Though we have some very excellent varieties in scarlet flesh, none of them has given anything like the same satisfaction as green-flesh Melons; and as I consider High Cross is one of the very finest, taking size, appearance, quality, free bearing, and constitution into consideration, I crossed it with Blenheim Orange, resulting in a scarlet flesh (Seedling No. 13), the counterpiece of High Cross, having the advantage of ripening early. I sent fruit to the Fruit Committee in 1884, and was told "the Committee did not think it distinct from other varieties in cultivation to merit a certificate." Perhaps not; but it is distinct enough to fetch 1s. more each in Covent Garden Market than any other Melon sent there by a grower for sale; and as it gives quite as many fruits in the space of other plants, it means 4s. to 6s. per light more—a consideration that tells with growers. It will, I think, suit our friend Mr. Iggulden, especially as he is not pleased with scarlet-flesh varieties so far, and it will keep several days without deterioration, having a hard rind, therefore not constantly giving off aroma and flavour with it as in the soft-rinded varieties. To get at a keeping Melon I crossed Sedar (an African) with North Durham, and have a large bluntly oval fruit, which will keep three weeks; but the flavour is poor, though some say it is excellent. It is too large for general culture, and crossed with Cashmere might be rendered presentable at an aldermanic dinner. It is constitutionally tender, given to exudation and canker. I have worked with other material, but the result was neither interesting nor desirable. Of varieties that I have not grown, though seen growing, Hero of Lockinge appeared an excellent sort. Were I to take to growing named sorts I should select \*Eastnor Castle, Golden Perfection, and High Cross in green flesh; \*Blenheim Orange, Read's Scarlet-flesh, and Scarlet Premier. If only one kind of each were wanted select those distinguished by a star, but if large fruit of Blenheim Orange is wanted the plants must not be allowed fruit on the first laterals, getting a strong plant, and thinning to three or four fruits on a plant.

Not many of the present race of Melons are directly descended from Egyptian. Bailey's Green-flesh was decidedly of that type, being in fact an enlarged edition, and a most superb kind it were, better far in flavour than any green-flesh now in existence. The only one at all like it is The Squire, which, however, appears to have lost in quality with the gain in size. Another form of Melon which appears to be losing favour is that represented by Heckfield and Queen Emma, both of which are of large size, very highly perfumed, and excellent quality. They have capital constitutions and are very free. Considering their firmness of flesh, I think it likely that crossed with a hard-rinded variety a keeping sort would in all probability result.

There is one other desideratum, and very much overlooked in the raising of varieties—viz., the obtaining of those with hardier constitutions. Little Heath is the hardiest I know in scarlet-flesh and Dell's in green-flesh. The plant is very healthy, the foliage small in relation to the size of the fruit, free setters, and swelling kindly; perfection as regards fruiting. Royal Horticultural Prize, green-flesh, and Duke of Edinburgh, scarlet-flesh, also are very free and hardy constitutions, but though the type is clearly defined in Little Heath and Duke of Edinburgh, which is certainly Cantaloup, I cannot make out Horticultural Prize or Dell's only to having some of blood of the pointed oval smooth form of Beechwood. Anyway, there is raw material for the manufacture of a fine fabric, only the constitutional properties can be retained.



The only one of somewhat recent date that showed any trace of the Black or Dutch Rock was Cirencester Prize; but whether anything constitutionally could be evolved out of these is matter for experiment, and I think highly probable. We want hardier varieties that could be supplied to the multitude as plentifully and cheaply as Vegetable Marrows.—G. ABBEY.

### MANURE FOR ORCHIDS.

DURING recent years some discussion has been devoted to the question whether Orchids are benefited by the application of manure or not, and though much has been said on both sides, yet it does not appear that any very satisfactory experiments have been undertaken or recorded as bearing upon the matter. For some Orchids, such as *Cypripedium insigne*, *Dendrobium nobile*, and *Calanthe vestita* and *Veitchi*, manure has long been employed, both in a solid form and as a liquid, in ordinary garden culture with favourable results, but it has been considered as absolutely unnecessary for other Orchids, if not positively injurious, and not without some reason. The majority of Orchids, but especially the epiphytal species, have extremely delicate fleshy roots, and nothing could be more likely to injure them than contact with crude strong manure in their compost. In fact, valuable plants have been so injured by injudicious application of strong stimulants, and the result has caused a prejudice against the employment of manurial agents in Orchid culture. When the value of plants is counted in guineas it is necessary to be cautious in such matters, or a small fortune may be soon lost. Nurserymen do not care about undertaking experiments that may prove very costly, and they prefer leaving them to amateurs who have more leisure for the purpose, and who probably would be less concerned at the loss of a few plants. Yet there are some experienced Orchid nurserymen who fully believe in the efficacy of manures used discreetly in small quantities, and who have strongly advised amateurs to make more experiments, with the object of proving how far this is the case. We know that tropical epiphytal Orchids are found growing in positions where the atmosphere must be full of the gases arising from the rapidly decaying vegetation beneath them; birds, too, are extremely abundant, and the guano deposited upon stems and branches where the Orchids grow must afford them far larger supplies of ammonia and other fertilisers than can be obtained from the peat and moss in which the majority of such plants are cultivated here. It may be fairly argued that we have in this no evidence that the plants are benefited by manures, for in a natural state they are often exposed to extremely adverse conditions; and if we point to the great size of pseudo-bulbs and flower stems on imported plants as compared with those subsequently produced under cultivation, it may be rightly said that the former are due to the greater sun heat and light they enjoy in their native haunts. In the absence of any definite evidence on either side, but with a presumption in favour of supplying moderate stimulants with great care, the only way of settling the difficulty was by experiments, and we have now to record some that have proved very successful.

At Higham Hill, Walthamstow, A. Borwick, Esq., has for several years had an interesting collection of Orchids which in the past year or so have made astonishing progress. Having proved the value of Jensen's fish guano for outdoor crops and miscellaneous plants, Mr. Borwick determined to try it upon his Orchids, and did so in a manner that would have been alarming to many persons. For all the Orchids in pots a compost was prepared of peat and charcoal in the usual way, but to each barrowload was added a 48-potful of the manure, which was thoroughly well mixed with the peat. The whole of the plants were then potted in this, the surface mossed over in the usual way, and they were treated in accordance with the most approved practice as regards the routine of culture. The results were so encouraging that it was decided to also try it in a liquid form, a quarter of an ounce being dissolved in each gallon of water, and being placed in the tanks in the houses it is necessarily given every time water is applied. It would not have been unreasonable, according to the ordinary opinion, to expect a great and sudden mortality amongst the Orchids as a consequence of this proceeding; but so far from this being the case the plants made a most vigorous growth, and are now as fresh, healthy, and strong as anyone could desire. Even to the least sceptical it is surprising, but "facts are stubborn things," and it is evident that manure can be employed for Orchids with considerable advantage.

Two span-roofed houses, each about 30 feet long, contain the majority of the Orchids, one being devoted to the cool species of Orchids and the other to the tropical ones. In the first, which is kept at a minimum temperature of about 50°, is an excellent collection of *Sophranitis grandiflora*, about 300 healthy plants in thumbs and 60-size pots. They were the strongest little plants we have seen for some time, and were bearing a profusion of buds, promising a beautiful display of their bright scarlet blooms a few weeks later. These, with the majority of the other plants in this house, are grown on open stages over another shelf, upon which is spread a layer of ashes kept constantly moist. Beneath this stage upon one side of the house are open tanks 4 feet deep, which receive the rain water from the whole house, and is used exclusively for the plants. *Lycaste Skinneri* is very handsome in the same house, the plants most vigorous, with stout pseudo-bulbs, while the flowers are large and of fine substance. These evidently thrive on the manure already mentioned, and there can be no question that they, with *Cypripedium insigne*, *Maxillaria grandiflora*, and several other strong-growing Orchids, have benefited considerably by the applications they have received. *Odontoglossums* of the *O. cirrhosum* and *O. Alexandræ* types are numerous and healthy, but the effects of the manure is not so marked in their case. *O. Rossi majus*,

*O. gloriosum*, and *O. tripudians* are doing well, a fine variety of the last named being now in flower. Of *O. cirrhosum* there are also some good varieties in bloom, the flowers of great size, with bold richly coloured spots. *Oncidium leucochilum* is showing a stout spike, and there are numbers of others advancing to afford a display later in the season. One plant of *Odontoglossum* deserves special notice as being one of the most distinctly variegated Orchids we have seen. The leaves are about the usual size, but are clearly striped with white, which has kept true for several years, though, owing probably to a certain weakness of constitution, like many other variegated plants, it does not grow freely—in fact, it does not seem to make any progress, but continues in the same condition. *Lapagerias* are trained to the roof of this house and are growing vigorously.

The warmer house contains a large miscellaneous collection, including some very handsome specimens of *Lælia purpurata*, *Cattleyas*, *Cymbidiums*, *Lycastes*, *Dendrobiums*, and *Ceologynes*. The last named are grand masses 2½ feet or more in diameter with large solid pseudo-bulbs, and are evidently in superb health. The beautiful Chatsworth variety is in capital condition and bearing numbers of its fine open flowers. *Cymbidium Lowianum* is represented by a wonderfully strong specimen which has ten growths this year, and six plants have been obtained from it previously. It has three spikes, one with twenty-seven flowers and the other two with twenty-four each, and one year it produced a spike with thirty-two flowers. The pot is crammed with roots, and this plant alone is ample evidence of what manure will do for strong-growing Orchids of that character. *Lycaste Skinneri* is also doing well in this house, a number of beautiful, delicately, and richly tinted varieties being included. The able gardener, Mr. Gilks, thinks that the flowers expand much better in the warmer house, the sepals and petals being straighter and more erect than in a lower temperature, where they often recurve. Of the white *Lycaste Skinneri* there are several young plants, most of which have been raised from the old back pseudo-bulbs of a purchased plant. Eight have been obtained in this way, the first growth after the old pseudo-bulbs were potted being very small, but the second growth was encouraged like the other plants, and the result is in several cases that the last season's pseudo-bulbs are larger than the original ones. Two general favourites, *Odontoglossum Cervantesi* and *O. pulchellum*, are in excellent condition, and both are flowering abundantly. The former is in small pots about 3 inches in diameter suspended from the roof, and have mostly two spikes with three and four flowers each. *O. pulchellum* is charming, growing with the freedom of *Pelargoniums*, and bearing numerous spikes of its pure white fragrant Hyacinth-like blossoms. This is one of the most useful and pretty species of *Odontoglossum* that can be grown, and if it was always seen as at Higham Hill it would soon be in greater demand than it is. A handsome specimen of *Zygopetalum crinitum* is flowering well, having three spikes of four to six flowers each, the sepals and petals mottled with green and brown, the lip white, with bands of violet hairs radiating from the centre towards the margin. These are a few of the specialities, but there were also some healthy *Dendrobiums*, *D. Wardianum* being very strong. *Anguloa uniflora* is also good, as are numerous *Masdevallias*, *Lycaste Harrisonæ*, *Oncidium ornithorhynchum*, *Cattleya citrina*, and numberless others.

A third house contains a general collection of *Cypripediums*, *Dendrobium Ainsworthi*, *Angraecums*, *Aerides*, *Phalenopses*, and other Orchids. There are a vinery and conservatory, the latter containing a miscellaneous assortment of bulbs and flowering plants, all of which, with the Vines, are assisted by the same manure as the Orchids, but in rather more liberal quantities, though even for them it is wise to err on the side of small supplies. As regards Orchids, Mr. Borwick has done good service in proving that manure can be given not only without injury, but with actual beneficial results, and though his remarks upon the subject at the Orchid Conference last May were received somewhat incredulously, his plants afford substantial evidence that his views were correct. It may be remembered that on the same occasion several other orchidists detailed their experience, and amongst them Mr. Heath stated that he had used nitrate of soda and ammonia for strewing about the houses, with the result that the colour of the foliage was greatly improved, becoming a rich green tint. Many more experiments might be made in the same way, and it is probable the Orchid culture may be revolutionised in a few years.—C.

### TRANSPLANTING CAULIFLOWERS.

THE time has now arrived when this operation may safely be proceeded with generally, though in the northern counties it will be advisable to defer doing so for a week or ten days, according to weather and condition of soil; and if the work is done as set forth below satisfactory results will be secured. A portion of the plants was pricked out singly in 3-inch pots last autumn for early spring planting, and a piece of ground has been liberally manured and trenched for this and the Pea crop. In this we draw drills, running north and south, 3 inches deep and 2 feet apart. Some plants in pots of Early London or whatever variety is grown for early work should be planted with a garden trowel, disturbing the soil and roots as little as possible in turning them out. Press the soil firmly about the balls of earth and roots. Then dust a mixture of lime and soot around the individual plants, so as to prevent slugs from interfering with them; afterwards sticking some spruce boughs firmly in the ground on either side of the plants as a protection from frosts and cutting winds.



These, after an interval of a week or ten days, should be removed from the west side of the plants to prevent their making a weakly growth, and, weather permitting, a couple of weeks later the remainder of the boughs can be removed, the plants being earthed up in due time. It will be obvious to practical readers that plants thus treated are subject to little, if any, check in the process of being transplanted, and that a few plants turned out of the pots carefully and planted about the same time at the foot of south walls and protected from the attacks of slugs, as indicated above, will yield an early supply of small useful heads. Later plantings should be made from those pricked out in pits and frames at intervals of a week or two, the plants being taken up carefully with as much soil adhering to the roots as possible, and be transplanted in the manner detailed above.

Young plants resulting from seed sown in heat the middle of last month should be pricked out 4 inches apart in boxes or in a warm border under sashes or handlights, watered, be gradually hardened off, and when large enough planted out as above described, minus the spruce boughs. Sowings of the same varieties—Early London, Walchren, and Veitch's Autumn Giant—should be made in the open on a warm border about the middle of April, May, June, and July, and plants resulting from these sowings, if subsequently attended to as already described, will give a good supply of Cauliflowers well into the new year. In the summer the leaves should be bent over the "flowers" with a view to keeping the latter firm, as well as retarding them by protecting them from the direct rays of the sun. In early winter the same practice should be had recourse to as a protection against a few degrees of frost. I need hardly remark that during a dry summer, if good results are looked for, the plants should have liberal supplies of water given them at the roots, and it will be all the better if they are watered occasionally with liquid manure.—H. W. WARD.

#### MILDEW ON ROSE TREES.

I WISH to apologise to Mr. T. C. Clayton, and hope that he will not think me discourteous in not replying to his letter on page 70, for I overlooked his communication. I am very pleased to observe that he has altered his opinion about softsoap, and can now write favourably of its beneficial effects for the purpose for which I have frequently recommended it in your pages. I grow my Tea Roses in a heated structure from the beginning of November until the weather is sufficiently genial in spring to dispense with fire heat, when a night temperature of 55° to 60° can be insured. After this time sun heat is entirely relied upon for forcing forward the Roses if they are not coming forward as fast as we desire them. The difference, as referred to by Mr. Clayton, does not arise from the cause pointed out, for we syringe twice daily—that is, early in the morning and again in the afternoon; in fact softsoap is used whenever the trees are syringed. During winter syringing can only be done once a day, and during bad weather not so often, but at that season of the year it is always done in the morning. Mr. Clayton will thus see that no harm is caused to our Roses by the sun shining upon them after syringing, or while the foliage is wet with soapy water.

I have pointed out on several different occasions that one cause of mildew upon Roses is an injudicious system of ventilation. Cold draughts on all occasions must be avoided, as if any check is occasioned to the plants mildew is certain to appear. There are many mistaken notions respecting the ventilation of Roses when forced under glass during winter and early spring. From the hardy nature of the Rose many conclude that a liberal ventilation must be provided or the growth will be weak and the plants ruined, yet this causes them to be attacked by mildew and green fly. It is only reasonable to suppose that this would be the case when it is considered that the young tender wood and foliage is developed in a warm genial atmosphere, they are not prepared, and therefore cannot endure the cold external atmosphere. It is many degrees colder than the temperature of the house in which they are growing, causes a chill, and predisposes the plants to disease.

My advice to all who force Roses under glass during winter and early spring is to grow the plants without admitting air by means of the ventilators and doors, the latter only being opened when it is necessary to pass in and out. By this means, and through the laps of glass, sufficient air will be admitted for the proper support of the plants. I do not object to the admission of air when the atmosphere is warm and genial, and can be done without lowering the temperature of the house. Young men in charge of such structures will find this non-ventilating system much easier to be mastered and carried out than the intricate one practised in many gardens. The system of providing a circulation of air by day and night during forcing operations in winter and spring cannot be too strongly condemned, for no advantages are derived from so doing, but on the other hand the plants are checked, and thereby subjected to disease, the coal bill is increased, and the man in charge worried nearly to death by the lectures he daily receives on the mysteries of this wonderful system.

It would indeed be difficult to say why Mr. Clayton's Roses escaped the annual attack of mildew. But I should say it was escaped in his unheated house because he provided a snitable atmosphere, other conditions being also agreeable, which probably was not the case exactly in previous years. In regard to those growing outside, it is certain that all conditions

favourable to the growth and development of the Rose surrounded his plants, or they would have been attacked.—W. BARDNEY.



A DEVONSHIRE correspondent writes as follows on the LATE SPRING:—"We are still almost without a symptom of spring, and have hardly seen the sun for a fortnight. Frost again this morning (February 22nd) and everything a month behindhand. But everything comes to him who waits, and we shall no doubt be fully repaid for the cruel nipping we have had for the past two months."

— WE are informed that MESSRS. MESSENGER & CO. OF LOUGHBOROUGH have just been awarded the Gold Medal, the highest award, by the Society of Architects for the general excellence of their horticultural buildings, at the annual exhibition of the Society, which is being held this year at Sheffield.

— JUDGING by the annual report of the SOUTHAMPTON HORTICULTURAL SOCIETY affairs are not in a very flourishing condition. It appears that at the last Summer Show £100 less was received than in 1884, at the Chrysanthemum Show £70 less, and the annual subscriptions are £46 less; also 150 members have been lost and only ninety added. Still with all this the Society has a favourable balance, having received a donation of £196 from the funds of the Races Committee. This, however, is not satisfactory, and it is hoped the coming season may bring more success.

— A WELL-KNOWN gardener, MR. DAVID DOIG, OF ROSSIE PRIORY GARDENS, died recently at his house in the gardens, where he has served for the past twenty years, succeeding Mr. J. Kidd, with whom he commenced his gardening career as apprentice. He held several head situations before being appointed gardener at Rossie Priory, and was noted as a skilful horticulturist and for his knowledge of British plants.

— THE YORK FLORAL FETE is fixed for June 23rd, 24th, and 25th, and is to be held, as usual, in the Bootham Field. Ninety-six classes are provided in the schedule, the prizes being of the customary value, from £20 to 3s.

— MR. JOHN BURN, Felton, Northumberland, writes:—"Can any of your readers tell me how to prevent CATERPILLARS EATING FRUIT TREE BLOSSOMS inside orchard house? as last year I had some Apple blossoms totally destroyed, and they were so thick I could not get at the caterpillars with my fingers."

— THE ROSE SHOW AT MORETON-IN-THE-MARSH will be held on July 13th. Good prizes will be offered, and as the Society is affiliated to the National Rose Society, and the Revs. F. Burnside and J. W. Clarke are Secretaries, there is every prospect of a successful exhibition. Many rosarians will be sorry to hear that there is not to be a Rose show at Darlington this year.

— AN Orchid grower sends the following note, entitled A BLUE ORCHID: "It appears that an important addition has been made to the few blue-tinted Orchids we possess, for in the recent issue of one of your contemporaries, in a paragraph describing Mr. Philbrick's Orchids, it is remarked that 'Odontoglossum pulchellum, of sky-blue colour, and finely scented, was found in abundance, on one plant eighteen spikes were counted.' Is it possible that 'a sky blue' variety of this pure white Odontoglossum can have been obtained by Mr. Philbrick? If so it will be valuable; or could the writer have mistaken white for blue?"

— AT a recent ordinary meeting of the members of the WAKEFIELD PAXTON SOCIETY, Mr. T. Senior, the President, was in the chair, and Councillor Milnes occupied the vice-chair. According to the syllabus, Mr. E. B. Wigglesworth, one of the collectors in the waterworks department of the Corporation, should have read a paper on "Properties and Causes of Scent," but as he was unable to fulfil his engagement Mr. Herbert Chapman, the Honorary Secretary, read a paper by the Rev. Canon Hole on "The Happiness of a Garden." A vote of thanks was given to Mr. J. B. Charlesworth, J.P., of Hatfield Hall, for a gift of a



number of volumes of the *Journal of Horticulture* to the Society's library. Mr. T. Garnett, one of the members of the Society who attended the annual dinner of the Barnsley Paxton Society on the previous Tuesday evening, gave a report of the proceedings, from which it seemed that they were of a very encouraging and satisfactory character.

— A PAPER on "INSECTIVOROUS PLANTS" was recently read before the Wakefield Naturalists' Society, by Mr. P. F. Lee of Dewsbury. There was a good attendance. Mr. G. Parkin presided. Mr. Lee mentioned a number of plants, both British and foreign, which possess the animal-like attribute of utilising organic matter as food, as an aid to the ordinary method of vegetable nutrition, and then explained how this peculiar process is carried on. He pointed out how the plant captured its living food, and how by means of glandular secretions a process of digestion was set up in a manner singularly analogous to that which characterises animal life. A discussion ensued in which Messrs. Spurling, Garnett, and Fallas took part, and a vote of thanks was given to Mr. Lee for his paper.

— "H. S. O." sends us some handsome blooms of *DENDROBIUM WARDIANUM*, large, highly coloured, and borne in triplets. He also sends blooms of *Cattleya Trianae* and the beautiful *C. Warscewiczii delicata*, all showing excellent culture. Remarking upon the treatment of the *Dendrobium* our correspondent writes as follows:—"We have here about sixty plants and divide them into four batches. They give us a constant succession of bloom for four months—viz., from the beginning of the year until the end of April. They receive plenty of heat and moisture while growing, and a good season of rest. When growth is finished they are removed to the vineries and hang there until the flower buds are prominent, and during this time very little water is needed. They can then be brought into bloom as required by taking them back to warmer quarters. If thought desirable, the blooming period may be prolonged by removing them to a cooler and drier house as soon as the blooms are well open, but if the young growths are somewhat advanced this treatment does not benefit the plants."

— ROYAL AQUARIUM, WESTMINSTER.—The Directors of the Royal Aquarium have accepted a scheme submitted by Mr. Richard Dean of Ealing for a series of four horticultural exhibitions to take place during the coming season—viz., a display of Hyacinths, Tulips, &c., and cut Daffodils on Tuesday, March 30th, and Wednesday, March 31st; a great artistic Rose exhibition on Friday, June 25th, and Saturday, June 26th; a Strawberry fête and exhibition on Friday, July 2nd, and Saturday, July 3rd; and a great display of table decorations, bouquets, &c., on Friday, August 20th, and Saturday, August 21st. Liberal prizes are offered, and schedules of prizes can be obtained of Mr. Richard Dean, Ranelagh Road, Ealing, the Superintendent of the shows.

— It is not often any new designs in GARDEN RAKES are advanced; the Rev. J. Harding Cole, Woodview, Co. Cork, has, however, introduced a rake that is quite new. The inventor has found this implement extremely useful, and we doubt not it will be found equally serviceable by others, both gardeners and amateurs. The sample before us is strong and well made. The rake is described in the prospectus as follows:—"In using the rake on gravel walks, there is always experienced a want of something with which to extract or remove anything which the teeth of the rake will not catch, such as growing weeds. This important desideratum is now supplied by the 'Weeding and Hoeing Rake,' in which each extreme tooth forms a chisel-shaped steel cutter or grubber, capable of eradicating any weeds with facility and without injury to the implement. To give better effect to these cutters a curve is given to the back of the rake. These improvements largely extend the utility of the implement, not only in raking gravel walks, but also in many gardening operations, such as weeding, hoeing, opening drills for seeds, and thinning. As a hoe it is an extremely useful and handy garden tool, by reason of its narrowness, for working between plants, loosening the soil, &c., and the penetrating power afforded by its shape, at the same time, collecting the weeds as a rake, thus doing the work of two implements together."

— THE current issue of the "Botanical Magazine" gives coloured plates of the following plants—T. 6858 represents a bold handsome Orchid, *LISSOCHILUS SAUNDERSONI*, but which is little known in this country. It is described as "a native of Natal, and was first made known by a drawing sent to Kew by the late Mr. Saunderson in 1867, from which Reichenbach's specific description was drawn up. . .

*L. Saundersoni* of Harvey is quite a different plant, referable to the genus *Cymbidium*. For plants of this majestic Orchid, the Royal Gardens, Kew, are indebted to Mr. Lyle of Natal, who gave them in 1879." It produces fine lanceolate arching leaves, 3 or 4 feet long, and 3 to 4 inches broad. The scape is 6 or 7 feet long, bearing the flowers on a foot length from the apex, and they somewhat resemble the larger *Zygopetalums* in general form. The sepals are greenish, the petals broad and white, and the lip purple with darker veins.

— IN t. 6859 is given a figure of *CALOTROPIS PROCERA*, an Asclepiad, which inhabits western and central India, "where it is known for its medicinal properties as Mudar. . . . The inner bark yields a strong flax, from which halters, lines, and ropes are made; the silky hairs are used to stuff mattresses; the acrid milky juice, mixed with salt, is employed to remove hair from hides. Pieces of the roots are in common use for tooth-brushes, and gunpowder charcoal is made of the wood." The drug "Mudar" is prepared from the bark of root, stem, and branches, and is used as a tonic, a substitute for ipecacuanha. The flowers are nearly an inch in diameter, white on the outer surface, purple at the upper half of the lobes, and white at the base. They are borne freely in umbels from the axils of the leaves, which are elliptical and bright green. It forms a shrub 6 to 10 feet high.

— THE two following plates, t. 6860 and t. 6861, are devoted to *Synthyris reniformis*, a Californian plant with long racemes of small pale violet flowers and reniform leaves; and to *Rhynchanthus longiflorus*, a Zingiberaceous plant of little beauty, but interesting botanically. *CALOTROPIS GIGANTEA* is shown in t. 6862; it is a near relative of *C. procera* already noted, but is much stronger in habit. The flowers are more curious and less attractive. It is applied to nearly the same uses as *C. procera*, but "the strong silky flax yielded by the inner bark of *C. gigantea* is finer, and used for making the robes of native princes, as also for bow-strings, fishing lines and nets, for which latter purpose its indestructibility in water recommends it."

— LIKE Mr. G. A. Sala and other visitors to the metropolis of New South Wales, Mr. J. E. Taylor, Editor of *Science Gossip*, seems to have become quite enamoured of the SYDNEY BOTANICAL GARDENS. He says—"There are many trees of special note growing in the grounds. The principal of which, perhaps, is a magnificent Norfolk Island Pine (*Araucaria excelsa*)—a tree very abundant in the larger gardens and shrubberies of nearly all Australian towns. There are also fine specimens of the well-known Australian proteaceous plant, *Grevillea robusta*—perhaps the largest and most attractive of this singular order. *Merytas*, with their broad and showy foliage, the Maidenhair-leaved *Salisburia* from Japan (a coniferous tree, which has been in existence ever since the carboniferous period), the singular Manitian Palm, the Bloodwood of Norfolk Island (*Baloghia lucida*), the Osage Orange of America (*Maclura aurantiaca*), the Moreton Bay Chestnut (*Castanospermum australe*) with its deep green foliage and bright scarlet flowers, the Tulip-woods of Eastern Australia (*Harpallia pendula*), the *Randia macrophylla* from Lord Howe Island, besides Bananas, Bamboos, multitudes of species of Palms, New Zealand Cabbage Trees, *Dombeyas*, *Pterospermas*, *Nepheliums* from China, *Eleocarpus* from India, *Brexiass* from Madagascar, *Lactarias* from the Queensland bush, Sacred and other Fig trees from India, *Sciadophyllums* from New Guinea, *Botryodendron* from Norfolk Island, Cycads and *Zamias*, *Strelitzias* from the Cape, a vast number of species of Pines, *Erythrinass* from the West Indies (just bursting into their singular scarlet blossom), and many others too numerous but not too unimportant to mention unless in a botanical inventory—make up the diversified and wonderfully combined arboreal foliage with which the diversified surface of these beautiful gardens is clothed. Floral parterres and patches are gay with flowers whose manifold colours offer a rich feast to the eye. The rocks and rocky places are covered with the grotesque forms of Cactuses and Aloes. Climbing plants from all parts of the world have been trained to clamber up and festoon trees and shrubs of a less conspicuous character. All that botanical and horticultural art and skill can do, combined with perhaps the most picturesque situation in the world and a most delightful climate, have made the Sydney Gardens a place worth coming to the antipodes to see.

#### PALMS AND OTHER PLANTS FOR INDOOR DECORATION.

I CAN strongly recommend "A Thinker's" advice (page 132) to grow *Kentias* for the above work. We have two plants nearly 10 feet high in 12-inch pots that have done an immense amount of work. They have



stood in the entrance hall six weeks at a stretch in the autumn. Occasionally they have been used for dinner table and drawing-room decoration, done useful service at harvest and other festivals, and a year or two ago went up to London for the season. With all their hardships they always wear that cheerful deep green hue that "A. T." alludes to. When at home they stand in the shadiest corner of the stove, and a dose of a mixture of soft soap and petroleum keeps them clean.

When rooms, entrances, and passages of a mansion are required to be decorated six months of the year it is useless to rely on tender subjects, but plants of a lasting as well as of a bold and effective character should be grown. I place Palms first as the best decorative plants, especially *Kentia Belmoreana* and *Phoenix rupicola*. *Curculigo recurvata* is very good, also *Ficus elastica* with single or three or four stems. *Acalypha Macafeana* is a fine distinct plant with large bright-coloured foliage, which lasts a long time in a warm room, a good quality which cannot be said of *A. musaica*. *Oreopanax nymphæfolia* is one of the plants that cannot be killed. As its specific name implies, it has large glossy leaves. *Anthurium crystallinum* is A1 for brackets or where a one-sided plant is wanted. *Cupressus funebris* in its young state is a capital plant of a columnar habit and very pleasing shade of green. The list could be lengthened, but these will give an idea of what I mean. We do not use the conventional *Dracenas*, they remind one too much of the conserved plants you can buy at so much per yard.—DALESMAN.

### LIME FOR VINE BORDERS—ANALYSIS OF SOIL.

I WAS sorry to see Mr. Bardney's name attached to such an article as that on page 104. Discussion may improve all concerned, personalities never. If my motive for writing had been what Mr. Bardney insinuates, which I deny, it matters little so that the information is correct; and if he can supply any hints likely to prove useful in the study of qualitative analysis, many, no doubt, would be grateful, whether given to air his knowledge or for the public good. My impression on reading his first article was that many people, amateurs especially, would be led into a reckless use of lime not to be counselled.

Because a kitchen garden poisoned with manure is improved by a heavy dressing of caustic lime, does not prove it to be advisable to apply lime in that state to Vine borders, and in such a quantity as to whiten the soil. I believe such a quantity of lime in a new border would cause the rapid decay of all vegetable matter, and a large amount of the fertilising matter set free would be washed away. If I were called upon to construct a Vine border with turf cut from a sandstone formation, instead of giving lime in the form of powdered carbonate of calcium, or what would soon assume that form—slaked lime, and so destroy the turf, I would use phosphate of calcium in the form of bones, whole, or nearly so, which would preserve the turf as long as possible, and yield a supply of lime for many years. Nitrogen and potash could be given as a liquid. I may mention that fresh bones are the best, as they will yield much nitrogenous food.

If slaked lime is applied it would be better as a top-dressing, but not in the way Mr. Bardney advises. If lime is mixed with partially decayed or readily soluble substances containing ammonia, the ammonia would be liberated and escape into the air, as anyone may prove by dissolving a handful of sulphate of ammonia or guano in a little water, and then mix a handful of lime with it. It would be better to give the lime first, and wash it in before applying the compost. Mr. Bardney says, "Vine borders dressed annually with manure contain much humus;" again I differ from him. After having a year's washing, and all the readily soluble constituents taken from it, most of the remains are raked off, so that there is little humus left, and the value of lime in a Vine border should be chiefly that of a manure, and not as a solvent of inert matter. Respecting the kitchen garden, of course the cost of phosphate of calcium in any form would prevent its use except in special cases.

Ordinary lime is easily procurable and cheap, but it is liable to be overdone, and so set at liberty more food than is necessary, which will be washed into the subsoil and drains and be lost. I should consider eighty to a hundred bushels a good dressing, but it should not be buried deeply. The ground should have been dug first and the lime pricked in, as lime has a natural tendency to sink, and care should always be taken when applying manure to dig it in before putting on the lime, that no ammonia be lost. As an after dressing about fifteen bushels every alternate year would be enough, and likely to produce good results, and would save much manure, lime, and labour.

Where chalk is procurable I should prefer it to caustic lime, as its action, though similar, is milder and lasts much longer.

Since writing the above I have seen "Thinker's" statement. Does he apply his lime, not like Mr. Bardney, or is it exposed to the air a week before digging it in?—A. L. G.

### SOWING WRINKLED PEAS EARLY.

AT page 109 your correspondent "Lathyrus" tells your readers I am in error in Pea culture. Not ten yards from where I am writing I have a border of early Peas now just breaking the ground. They are all round seeds except one, and this is Early Bird (Burbury's). The whole have come up well except that, of which there are not ten peas up in each row, and the variety is the only one with wrinkled seed. I have yet to learn that half a pint of several new or recent varieties produce an equal crop to more than a quart of some fairly good varieties. Having grown the majority of the new Peas that have been sent out during the last twenty years, I can now confidently assert that no Pea of recent

introduction, either for colour, produce, or flavour, can equal the three following—Standard, G. F. Wilson, or Omega, all of which have been before the public for at least ten years.—KITCHENER.

### MILDEW.

I WAS pleased to read on page 88 that "H. C. W." had proved the value of lime and sulphur as a preventive of mildew; I have been successful with it, but the strength I use it differs from his.

We have a *Maréchal Niel* Rose trained to the roof of a greenhouse which was very subject to the disease, but after a few applications at the strength given below, the only traces of mildew were the black patches in the leaves where they had been attacked before. I have not had time to practise much with it in the open air, but under glass in the vineries, orchard house, and amongst Roses I have used it with the most beneficial results. The quantity I make is 2 lbs. of flowers of sulphur, 2 lbs. of unslaked lime, adding ten quarts of rain water, boiling it twenty minutes, well stirring it all the time; let it stand till cold, then bottle and cork down, using at the rate of one wineglassful to three gallons of water. It is necessary to attend well to the stirring process while boiling, otherwise the sulphur will not mix with the lime and water, and as "H. C. W." observes, should be used in the evening. If the first application does not destroy, it should be repeated occasionally, until it has the desired effect.

When used in the houses the mixture always discolours the paint and woodwork where it touches, and unless syringed off with clear water whilst fresh, will require scrubbing off afterwards.—G. W. CUMMINS.

### A GARDENING TOUR.

MANY horticulturists were attracted by business or pleasure to the great Exhibition at Antwerp last year, and a number of these visitors like myself took advantage of the opportunity thus afforded, and extended their journey to the principal towns of horticultural importance in Belgium. There was a time when such a trip would have been regarded as a considerable undertaking; but there are now so many routes by which the Continent can be reached, the service of steamers is so good, the passage so quick, and the fare so moderate, that a journey thither is looked upon as an ordinary occurrence, and is a part of many persons' common business routine. Still, to the young Britisher who first crosses the ocean there is much novelty and interest even in a visit to such near neighbours as the Belgians, which is rendered still more enjoyable by the friendly welcome all concerned in gardening are certain to receive. Nor can an observing man spend a week or so there without gaining some useful additions to his knowledge, for though we can see few private gardens kept in the style we are accustomed to in our own little island, yet commercial gardening is carried out on a most extensive and economical scale. Rapidity of propagation and quick growth are the prevailing rules at these very numerous establishments, and it may be safely said that many a useful lesson has been learnt in them by home nurserymen. Indeed a period spent in such continental "factories" is considered as an indispensable portion of the education of our rising young nurserymen. In other respects some advantages result from a visit to our neighbours, for a stranger cannot be in the country long without being impressed with the business aptitude, the industry, and the commercial solidity of the people; there is also an enthusiasm in most undertakings which is quite refreshing after the phlegmatic way in which we conduct affairs. This is well seen in the numerous societies, meetings, and exhibitions, the latter being substantially supported by both Government and townsfolk, and invested with an importance that they never seem to have in this country. Horticulture is regarded as one of the leading industries, and in consequence holds a high position amongst the trades and professions. That it pays for the encouragement it receives is evident from the enormous business in plants transacted not only with Great Britain, but with America, France, and Germany. The country seems to be a great nursery for the Continent generally, and it would be difficult to estimate the amount of exports to the principal countries. Azaleas and Palms, however, certainly run into millions, and one firm alone grows at least a million Palms, while acres of Azaleas can be seen planted out. These are only items in the trade, but give an idea of what horticulture is in Belgium. It has however been repeatedly described, and the older readers of this Journal are familiar with numerous instructive and entertaining articles from an able writer. I can therefore only advise them to pass the following rambling notes, which are written for the new readers or non-travellers who have not had an opportunity of inspecting continental gardens and nurseries. My programme may serve as a guide to those who are meditating a similar tour during the coming spring or summer, and for their benefit my jottings will not be exclusively technical.

### ANTWERP.

Steaming slowly up the "lazy S-heldt," as Goldsmith termed it, we sighted the cathedral tower of Antwerp late in the evening of a brilliant summer's day. We had a delightful passage from Harwich in one of the Great Eastern Railway Company's commodious vessels, and it was almost with a feeling of regret that the very uninteresting river was entered. It was the first day passage of the season, and, except where economy of time is an object, I should greatly prefer this mode of crossing the German Ocean, for in fine weather nothing could be more enjoyable. Some friends who feared the *mal de mer* selected the shorter sea routes, but they are not always the least troublesome in that respect, and if Antwerp is the destination it necessitates a long train journey after landing. The Great



Eastern Railway steamers run alongside the quays in the town and within a convenient walk of the principal hotels, several of which, such as the Hotel de l'Enrope and Hotel St. Antoine, are situated in the Place Verte, which is easily reached from the quays. For those who wish to be more economical there are numbers of smaller quieter hotels farther up in the town, where the charges are very moderate, the accommodation good, and where English is spoken, an advantage which many will duly appreciate. A moderate knowledge of French is a valuable assistance in a journey to Belgium; it will smooth many difficulties and facilitate travelling, but it is not essential, for there are thousands of English-speaking people in the towns, and a question in good plain English is often more likely to bring a satisfactory answer than a lame attempt to express one's wishes in French. It is surprising what a number of persons are met with who can transact their business in four languages. First there is the Flemish, the native dialect of the country, something akin to the Dutch, with many words identical with or very similar to our own. Then there is the French, the polite language, which is written and printed and generally used in conversation, except in a few places and out of the towns. Third



Fig. 26.—*Rhododendron hirsutum*.

and fourth are English and German, which are the business languages, and with which many are familiar in such centres as Antwerp. At most of the railway stations the clerks can speak a little English, and at many of the principal stations directions as to ticket offices, trains, &c., are posted up in three languages—French, Flemish, and English. Everything, in fact, is done for the convenience of travellers and to encourage visitors, and an instance of this was afforded at the time of the Exhibition in Antwerp. For the benefit of strangers an official register of respectable lodgings to let in the town was formed. They were inspected and classified in certain grades, according to the accommodation provided and their respective charges. A friend who availed himself of this obtained very comfortable apartments and excellent attendance at more moderate charges than he could have done at the hotels, where the prices rise alarmingly on special occasions.

These notes by the way; but my object in Antwerp was to see what was horticulturally interesting, and then the features of general importance, and in both I was greatly assisted by an excellent friend, M. Charles Van Geert, to whom I shall ever consider myself indebted. Under his guidance more was accomplished in a couple of days than would probably have been otherwise seen in a week, and the pleasure was further increased by the agreeable manner in which it was performed. Antwerp is interesting in several ways. Its rapid extension in recent

years, the fine dock accommodation and wonderful quays afford ample evidence of a most cheering present and future prosperity, while the old portion of the town, with the numerous ancient buildings of quaint architecture, and its grand old cathedral, are indications of a long, chequered, past career. It is also by no means wanting in beauty, though its "Places," "Avenues," &c., cannot be compared with those of Brussels. They are spacious, well planted with trees, and in the summer form pleasant shaded promenades such as we often sigh for in London. There is a pretty park of moderate extent, well kept, and bright with flowers, many of the open spaces being similarly enlivened by beds of flowers and fresh green turf. The museums and picture galleries furnish numerous attractions, and one, the Musée Plantin, should be visited by all, for it is one of the most interesting in the town. It was for a long time in the possession of a family who there printed and bound a great number of books upon all subjects, including some of the oldest botanical works, such as those of Lobel, Dodonæus, Clusius, and others. The engraving and every detail, even the type founding, was done upon the premises, and the old instruments, blocks, and proofs are still shown. At the time the members of the Botanical Congress visited the Museum a sheet of handmade paper was printed from the old type with blocks from the works of the botanical authors named, and presented to the visitors as a memento.

With the exception of M. Charles Van Geert's nursery and two or three private establishments, there is not much of horticultural importance in or around Antwerp, but by a short journey the wonderful nursery at Calmpthout is reached, and nearer still is one of the most interesting and best kept gardens in Belgium, to which a few notes must be now devoted.

#### A BELGIAN AMATEUR'S GARDEN.

A few miles from Antwerp on the Brussels line is a village bearing the curious title Vieux-Dieu, and a short distance from the station is situated the garden and residence of M. Jean Everaerts, one of the most celebrated amateur horticulturists in Belgium. The garden is in many respects a remarkable one, and presents a most agreeable surprise to those who have visited a few of the private establishments in that country. The surroundings are not picturesque, being somewhat flat, like the greater portion of the district round Antwerp. The soil would have been sufficient to discourage the most ardent enthusiast, being shallow, in many places very sandy, and in dry weather quite loose and dust-like. Directly the garden is entered, however, it seems as if we have passed into another country, for we see abundance of fine trees, varied shrubberies, velvety lawns, and a diversified surface such as could never have been expected. It is not the production of a few months, but represents years of steady improvement under the superintendence of the owner and his equally enthusiastic wife. When amateurs take a genuine interest in their gardens they perform their work in a manner that would do credit to many professional gardeners, and the best results are obtained by those who have a love for their occupation. So it is at Vieux-Dieu. M. Everaerts has had innumerable difficulties to encounter, but perseverance and an increasing interest in the work has enabled him to overcome them, and he has now every reason to be proud of the result.

The garden comprises about 33 acres, devoted to flower garden, kitchen garden, plantations, lawns, and rockery, which are enclosed by walls or wire netting as a protection from the rabbits, which are far too abundant for the safety of garden occupants. Two or three houses are devoted to Vines and greenhouse plants, Zonal Pelargoniums and Carnations being specialties, groups of both these being exhibited at the leading shows with much success, and the Souvenir de la Malmaison Carnations are admirably grown. But it is out of doors we find the great attractions of the establishment. One of the first which takes attention is a handsome flower border over 6 feet wide, which encircles a lawn and shrubbery of 5 acres. This is planted with a choice and extensive collection of herbaceous perennials, bulbs, &c., all the most effective that could be obtained from this country or elsewhere being included, and a most valuable supply of flowers it affords throughout the greater portion of the year. It gives very little trouble beyond occasional weeding when required and an annual winter-dressing of manure in December. The plants are encouraged to grow strongly and naturally, the object being to avoid the formality so often apparent in gardens. A winding walk passes through the shrubberies, and near it is a border of Pinks that afford flowers by basketfuls, and are much valued for the sweetness and unassuming beauty; indeed, all old garden favourites are valued there. M. Everaerts finds it a good plan to lift and replant the Pinks every three years, and, judging by the strong healthy clumps, his system suits them admirably. In prominent positions around the shrubberies bulbs have been planted by thousands, such as Tulips, Crocuses, Hyacinths, and Daffodils. There they are left all the year, and with the exception of the annual dressing like that given to the herbaceous border they receive but little attention. In the early spring months they render the garden very gay with their brightly coloured flowers, and no better time could be chosen for a visit to Vieux-Dieu than March or April in favourable seasons. This method of planting bulbs is more practised than it was a few years since, but even now there is plenty of room for the production of charming effects in gardens to precede the summer floral display.

From what has been said respecting the soil it would scarcely be expected to be a favourable situation for trees and shrubs, particularly Conifers, yet there is an excellent collection, comprising the best of the deciduous and evergreen species, while the Conifers include a number of handsome vigorous specimens. Retinosporas seem to be especially well suited and are thriving capitally. Several species of Abies are similarly good, and a specimen of *A. Hookeriana* 9 feet high, beautiful proportioned,



is one of the two best examples of this handsome Conifer in Belgium, the other being in M. C. Van Geert's nursery. *Cryptomeria japonica* also grows vigorously, a finely shaped tree 25 feet high being very notable. *Abies Nordmanniana* is represented by some beautiful specimens, but *Wellingtonia* and *Araucarias* which had previously done well were killed in the winters of 1879-80 and 1880-81; young plants have however been placed out, and at present seem to be progressing favourably. Roses occupy considerable space, and a number of medals from various shows prove with what success they are grown. They are great favourites with Madame Everaerts, and receive her special attention.

Returning from the shrubberies we approach a small lake, and skirting this is a path with a rustic fence, leading to the most remarkable feature of the garden—the rockery. Without rivalling the York Rockery for extent, this is in some respects an extraordinary production, more especially as being the work of one person, and its history may be briefly given in M. Everaert's own words. "It was commenced twenty years ago, was very modestly and gradually enlarged by continual personal work during leisure hours, business retaining me in town from 9 A.M. to 5 and 6 P.M.

display is made in the spring, April being one of the gayest months, for at that time a large number of early-flowering plants are at their best. *Aubrietias*, principally *A. græca*, occupy much space; the rich blue *Lithospermum prostratum* scrambles about over the stones in all directions. *Saxifraga oppositifolia* and others flower abundantly early in the year. *Silene acaulis* and *S. alpestris* furnish some lovely tints of pink, while *Veronicas rupestris* and saxatiles supply blue tints. *Primulas* of many species and varieties, the delicate little *Soldanellas* with their charming fringed flowers, *Linaria alpina*, and *Daphne cneorum* are all conspicuous for their numbers. The humble namesake of a great botanist, *Linnaea borealis*, is thoroughly at home, creeping in all directions over the stones; while that difficult plant the *Edelweiss* could not be better in its native home. A few *Rhododendrons* are employed, and amongst these are extensive patches of *Saponarias*, which also hang over the larger rocks, clothing them most gracefully. *Omphalodes* and *Forget-me-nots* are abundant and strong, but one of the most telling features is *Erinus alpinus*, which is thoroughly established, seeding freely and flourishing in all parts of the rockery. A pretty dwarf shrub which succeeds well in the rockery



Fig. 27.—ROCKERY IN M. J. EVERAERT'S GARDEN AT VIEUX-DIEU, BELGIUM.

Every stone has been placed with my own hands, and every alpine has been planted by myself." Moreover, a large proportion of the occupants have been collected in the Swiss Alps by M. and Madame Everaerts, and established in their present quarters after much care and some unavoidable failures. Comment upon this is needless; it has been a work of love, and the results are unequalled. A mound was raised artificially to the height of 25 feet above the ground level, declining at some parts to 20 feet, and then sloping down into lower ranges and mounds, forming little valleys and suitable nooks for alpine plants of all requirements. The total length with the outlying mounds is over 100 yards, and it is traversed by narrow winding walks into rough natural stone steps. The stone is employed in large irregular blocks and arranged as informally as possible, like the numerous alpine scenes the designer has seen. To introduce an element of utility, however, the lower portion of the rockery is occupied by an ice cellar. In the engraving (fig. 27), which has been reduced from a photograph, a portion of the rockery slope is shown at its highest part with the lake at the base, but it is difficult to do justice to it in this form, though it will suffice to illustrate the general plan.

It would be impossible to enumerate in these notes the whole, or even the most beautiful, of the plants which occupy the rockery, and a few observations upon the principal features must suffice. The great

is *Rhododendron hirsutum* (fig. 26) or the Mountain Rose, as it is sometimes termed. With *R. ferrugineum*, *album*, and a few dwarf Himalayan species it grows and flowers profusely. *Andromedas*, *Pernettyas*, and *Ericas* are employed in the most exposed positions, while in the shady parts *Gaultheria procumbens luxuriates*.

*Cypripediums*, such as *C. Calceolus* and *C. spectabile*, appear to be equally happy, but the latter is seldom seen in such fine condition, for some plants last year bore between fifty and sixty richly coloured flowers. *Lilium auratum* thrives and gains strength yearly, all the protection that is given being an old door placed over the bulbs to throw off the rain, which does them more injury than the frost. Bulbs are planted freely, as in part of the shrubbery already mentioned, and yield their flowers in profusion, as also do the *Hellebores*, of which there is a good collection. These last named have been very fine this season, the old Christmas Rose having flowered grandly. *Sedums* and *Sempervivums* serve to clothe many of the rocks, and in the lower portions a collection of bog plants, such as the Buck Bean, *Pontederias*, &c., *Water Lilies* having a place at the margin of the lake.

Such is a brief list of the plants which M. Everaerts has been successful with, and that have rendered his rockery so famous. But he says, "I have of course had many failures and even till now have not succeeded



in acclimatising the *Androsaces*, the *Pinguiculas*, the *Azalea procumbens*, *Gentiana bavarica* and *verna*, and that prettiest of all alpine gems *Eritrichium nanum*, which is found on hard gritty ledges of high mountains, where melting snow from above gently percolates through the hard stony soil. These gems seem to grow well enough, but are eaten, uprooted, or otherwise tormented and destroyed by snails, moles, crickets, and black-birds, the latter uprooting the plants in search of some earthworm attracted during hot summer days by the moisture of the roots. I have saved some *Androsaces* and *Gentians* lately by protecting them from the marauders by pieces of wire netting. We wage continual war against the mole, crickets, pouring oil into their little galleries, which soon brings them to the surface and causes their death." With these few exceptions the success has been surprising, and M. Everaerts deserves all the praise due to a skilful horticulturist.

The kitchen and fruit garden departments are well attended to by a gardener, who, by the way, has, through the liberality of his employer, learnt English that he might read the *Journal of Horticulture*. In every department, however, the proprietor superintends, and right well is the work performed. My visit was a brief one, but never have I spent a more enjoyable hour than in the garden at Vieux-Dieu.—LEWIS CASTLE.

## THE ROYAL HORTICULTURAL SOCIETY'S PROVINCIAL SHOW.

### PRIZES FOR GARDEN PRODUCE.

THE date at which the Royal Horticultural Show at Liverpool has been fixed surprised me, and I think it would have been decidedly better towards the end of July or early in August. This date, the 29th of June, will certainly exclude nearly all vegetable growers from the northern parts of the country; in fact, they will be entirely shut out—that is, if the schedule contains prizes for vegetables. It is too early to expect a good display of fruit. No doubt, Black Hamburg Grapes, Peaches and Nectarines, Melons and Strawberries, may be gathered together in quantity, but a good representative fruit and vegetable show can scarcely be expected. Although the date is too early for the above, it will be right for a good display of Roses and Orchids, which will be more plentiful in June than in August.

I was, however, going to write about the excellent suggestion of "Ex-exhibitor," and not to criticise the date at which the Royal Horticultural Society have fixed their Show to be held in Liverpool. The system of grouping small decorative plants has become a general one, and very effective and interesting they certainly are, in fact few exhibits are more admired by the public. I think the "Royal" would be doing a service to horticulture generally if they took up the idea of "Ex-Exhibitor" and offered substantial prizes for a miscellaneous collection of garden produce, or as stated on page 128 "everything that a gardener can arrange as representing his work and practice. If the Royal did this they would be taking a new departure—for the notion is new as far as I know—and add materially to the interest of the exhibition. Not only so, but they would be setting a worthy example, which would be taken up and carried out in the future by other societies, horticulture would be more widely and generally stimulated than is the case by exhibitions as conducted at the present time. I do not doubt that if the officials of the "Royal" think this suggestion worthy of their consideration that the class provided would be worthily represented. Now that the shows are going to be held again in the provinces some new departure should be taken or distinctive feature displayed to render it in advance of those that have been previously held. The "Royal Horticultural Society" has been "sleeping" lately said a friend the other day, and I believe gardeners and horticulturists generally are anxious and desirous to see it again the leading spirit and prime mover in horticultural matters. I support "Ex-Exhibitor's" suggestion, and I do not see that anything can be added to it, except that similar provision be made for nurserymen and seedsmen. Such an assortment that could be provided by them could not fail to be interesting and attractive as well as instructive to all lovers of horticulture.

### PRIZES FOR GARDENS.

Prizes are given for farms, why could not the Royal Horticultural Society offer a cup, medal, or substantial money prize for the best kept garden within a certain radius of the exhibition? When I write the best kept garden, I do not mean the largest and most extensive, but the quality of the whole produce of the place might be subjected to the judgment of those appointed for the purpose. The whole contents of the houses, whether plants or fruits, the vegetables, the flower and fruit garden as well as the general condition might be considered. The object of the Royal Horticultural Society is to advance horticulture and stimulate horticulturists to zeal and energy, and would not some suggestion such as this assist in carrying out the object in view? By so doing I am inclined to think the Society would rise considerably in the estimation of that class who would otherwise be excluded from taking an active part in making an attractive exhibition in the Botanic Gardens. There are many employers who object to their gardeners exhibiting, but very few indeed would, I think, object to the produce of their garden being subjected to the judgment of competent men. They could not well object, for in the end they would be the gainers, for those in charge would certainly exert themselves to the utmost to excel with all they took in hand, whether fruits, vegetables, or flowers. This is no new notion, for it has been practised by some societies on a limited scale, principally for cottage gardens, and in others as far as lawns and flower gardens are concerned. There would certainly be some difficulties in the carrying out of this project,

but there are difficulties in every undertaking, and surely these could be surmounted. They are in the case of the farm, why not for the garden?

### PRIZES FOR BOILERS.

There have been many discussions from time to time on the relative merits of boilers for horticultural purposes. There has not been a boiler contest since the one held at Birmingham—if my memory serves me right—and would not the exhibition to be held be a fitting opportunity for testing the merits of the various boilers in the market? Liverpool is very central, and in my opinion no branch of horticulture—for such it may be termed—is of greater importance or more deserving the attention of all interested in gardening pursuits. We cannot well do without a boiler of some description to heat our plant and fruit houses, and when new ones are required it would be a great advantage to know which could be relied upon as the most durable, economical, and by which the desired heat could be achieved in the least possible time. Many boilers, although they may be durable, are neither economical nor can they be heated quickly. One that can be heated quickly and at the same time effect a saving in fuel, combined with durability, is the boiler that is in request at the present time. I believe there are boilers which combine all these qualities, but it would be well to know which they are or the one considered the best by the authority of the Royal Horticultural Society. I think if those who have the management of the Exhibition in question could see their way to arrange a contest, and thus settle this question for the present, they would be doing good service, which, I believe, would meet with the approval of hot-water engineers as well as gardeners. I know several of the former as well as the latter who are anxious that a boiler contest should take place, and it is certain that if this matter cannot be entered into by the "Royal" this year it will not be long before it engages the attention of some of the leading provincial societies.

I do not well remember the conditions upon which the boilers contested at Birmingham, but throw out the following suggestion for the consideration of all who may be interested in this subject. I think the best plan would be to provide each competitor with a certain quantity of coal and as much water as would be equal to 1500 or 2000 feet of 4-inch piping. At a certain distance from the boilers as might be arranged the water, except that required for the boiler and connecting pipes, should be in a tank. Those who heated the water in the tank to any heat that might be specified in the least time and with the smallest quantity of fuel should be accorded the premier position, provided the durability of the boiler was considered equal, if not superior to the others, or was at the least perfectly satisfactory in this respect. The thickness of the iron of which the boiler was made, whether cast, rivetted, or welded, should also be considered in judging, for one with a very thin plate of iron would certainly heat first, but would lack durability. I do not think the contest should be decided by one trial, but that they should be tested for three or four consecutive days, or each day during the time the exhibition is held.

I hope that these few ideas may draw from "Ex-Exhibitor" and others their views upon this subject, and suggestions for the best and most effectual manner of testing boilers used for horticultural purposes. It is to be hoped that the Royal Horticultural Society will see their way to include in their exhibition scheme a boiler contest if they consider the matter of sufficient importance.—HORTICULTURIST.

[We understand the Liverpool Horticultural Association will hold its Show as usual at the end of July, so that the fixture of the "Provincial" could not be very well deferred to a later date than that announced.]

YOUR able article on the above which appeared in your last issue would be read with interest and satisfaction by all lovers of horticulture and friends of the "Royal," one sentence especially being worthy of the greatest consideration: "With strong local support and the friendly aid of horticulturists in other parts of the kingdom an exhibition of remarkable beauty may be easily provided." To this, the end of the first paragraph seems to give a satisfactory reply: "The Council was farther assured of the hearty co-operation of the Liverpool officials and horticulturists." There can be no question as to the desirability or, might it not be urged, the necessity of "strong local support" to arrange a successful exhibition. A writer in a contemporary advises the combination of the "Royal" and the Liverpool Horticultural Association as the surest means to this desired end, and without doubt the executive of a Society who in seven years can show a subscription list unequalled by any in Great Britain, whose spring and autumn meetings are second to none, would be of value for advising or carrying out the work in detail, such as advertising, placarding notices, and the many requirements needed for a display of such magnitude. They would also be in a position to gain the public interest for this show, but in the event of their holding the usual Bank Holiday Exhibition their whole energies would naturally be centered for the welfare of the Association.—A LOVER OF HORTICULTURE.

### REVIEW OF BOOK.

*The Miniature Fruit Garden*, edited by T. FRANCIS RIVERS. Nineteenth edition. London: Longman, Green & Co. 1886.

It is nine years since the eighteenth edition of this useful little work was issued, and another edition being demanded, the nineteenth is now placed before the public. Very few works upon special subjects command such an extensive sale as this has done, and its popularity is a faithful index to its merits, for as a concise practical treatise it is most valuable. The original work was from the pen of the late Mr. Thomas Rivers, but several of the recent editions have been revised by his son, Mr. T. Francis Rivers.



The editor has, however, found little occasion to alter or add to his father's work, and with the exception of two or three small chapters, such as those on "Cordon Trees" and "Seedling Pears," very little is added, for as it is stated in the preface, "Trees do not change their nature, and the rules for their cultivation in one year, if sound, must be the same in all succeeding years." Amateurs and others may rely that the instruction is sound, for it was derived from a life devoted to the study and culture of fruit trees, and abounds in those useful practical hints upon apparently small matters that so often remove difficulties from the paths of the experienced.

Much attention is given to Pears and Apples, which are fully treated of for all their various purposes as pyramids, bushes, cordons, on various stocks, gathering the fruit, &c. Chapters are also devoted to Plums, Cherries, Filberts and Nuts. Then in dealing with general culture there are chapters upon "Seedling Fruits," "Pyramid Orchards," "Double Grafting of Fruit Trees," and many other subjects of a similarly interesting and important character.

In several respects the book has been considerably improved, the page is enlarged, a bolder type is employed, and it is tastefully bound in brown cloth with gilt lettering.

## A COMPARISON OF MANURES FOR THE GARDEN AND ORCHARD.

[A paper by Professor G. C. Caldwell, Ithaca, New York, read before the Massachusetts Horticultural Society.]

(Continued from page 130.)

THAT the presence of decaying vegetable matters or of humus in the soil does increase the proportion of carbonic acid there is fully shown by analysis of the air in the pores of the soil. The air above the soil contains three parts of carbonic acid in 10,000, while that in the soil may contain ordinarily 100 parts in 10,000; and, moreover, such richness in carbonic acid is found only in the air of soils containing humus. A rich dressing of stable manure, or, in other words, a large addition of decaying, humus-forming substance, largely increases the quantity of free carbonic acid in the soil. An Asparagus bed that had not been manured for a year contained in the air in the pores of the soil 122 parts of carbonic acid in 10,000, but when recently manured 233 parts. Another, a surface soil rich in humus, had 540 parts of carbonic acid, a newly manured sandy field 333 parts, and the same soil, in wet weather, 1413 parts of carbonic acid in 10,000 of its air.

This function of the humus of the soil can also come into use with respect to the plant food added in manures. To me, one of the most interesting properties of soil is that remarkable power it has of absorbing certain valuable plant nutrients, holding them in a difficultly soluble condition near the surface, so that, however much rain may leach through the ground, they will be only very slowly carried down deeper, or washed out altogether. Thus the soil behaves with phosphoric acid, with potash, and with the ammonia that is so valuable for its nitrogen. For these three substances any arable soil that is not too sandy is a most trustworthy savings-bank. Therefore, although we should make much account in buying a fertiliser of the proportion of soluble phosphoric acid, or potash, or nitrogen compounds in it, yet in all probability, to say the least, our crops take up but a little of these nutrients before they are changed by this fixing power of the soil into a difficultly soluble condition.

Why, then, it will naturally be asked, should we pay 10 cents a pound or more for soluble phosphoric acid when we can get good insoluble acid for 6 cents or less, if what we put on the soil as soluble so soon becomes insoluble? For this reason, partly, that the even distribution of the food through the soil is a matter of much importance. Anyone can easily understand that if a bottle of the much-advertised, and I suppose very useful tonic, Horsford's acid phosphate, were poured over half a bushel of soil, and washed in with a slight drenching of water, phosphoric acid would be far more thoroughly mixed with that soil than, by any reasonable amount of stirring such as one could afford to give to a cultivated field, he could distribute 2 ozs. of dry superphosphate through the same quantity of soil. So, when 400 lbs. of superphosphate are applied to an acre of soil, in spite of the best of the usual cultivation that could be given to that soil the fertiliser would remain in little scattered particles here and there; but let the rain take it into solution for a short time, and distribute it over the surfaces of many hundred thousand particles of soil, so that the feeding rootlets find it wherever they go, and how much wider and more even the mixing of the fertiliser with the soil will be; and yet, so quickly does the soil seize hold of this travelling plant food, and insolubilise it, if I may borrow a very convenient French word with a very plain meaning, that it cannot stray far off.

Practically, then, every crop has to procure all its phosphoric acid, all its potash, and a part at least of its nitrogen, from difficultly soluble compounds in the soil; and I think it is now easy to understand why, as so often observed, commercial fertilisers do their best work when used with stable manure: the abundance of carbonic acid generated by the fresh application of such manure assists in the re-solution of the insolubilised phosphoric acid and potash of the commercial manure, as well as of the difficultly soluble native food of the soil. Some writers consider this to be such an important function of stable manure that they condemn the practice of allowing it to rot in the yard at all; they would have all the decay go on in the field, just where the products of this decay are needed for their action on the soil. It was somewhat interesting as well as amusing, while I was writing this, to meet with the statement in an English paper that a patent had been taken out in England for charging a soil with carbonic acid through pipes laid near the surface. A few good results of such a system would be worth more in illustration of the principle that I have been explaining than the patent will ever be worth to the inventor. No results are given, but you see that it is exactly what Stoeckhardt did, and I have no doubt that it would increase the yield of crops; but as long as we can still get hold of any humus-forming material at reasonable rates, we have a far cheaper method of attaining the same end.

There are other ways in which humus may, and doubtless does, favour the production of crops; but, to my thinking, all of them taken together do not sum up for so much as does this one way that I have been speaking of.

We can compare stable or other animal manures in another way that may explain the reason why less satisfactory results are sometimes obtained with the latter; I refer to the comparative cost of plant food in the two kinds of manure. You are aware that the Directors of the Experiment Stations of Massachusetts, Connecticut, and New Jersey have, in the past few years, conferred together in the spring to determine what may be considered as a fair valuation per pound of nitrogen, phosphoric acid, and potash, in their various degrees of solubility as found in these manures. The figures thus given represent the retail cost of these substances, in the markets of the State where they are sold as raw materials to be worked up into the various brands of fertilisers offered for sale during the year.

On the basis of this scale of values adopted for 1884 I think it is fair to assume that when a gardener or a farmer buys potash in a commercial fertiliser, with the same degree of solubility and availability for plant food as in ordinary animal manures or other animal waste used for manure, he will have to pay at least five cents a pound for that potash; for phosphoric acid of like solubility and availability as in these domestic manures he would pay about nine cents a pound, and for nitrogen, sixteen if not eighteen cents; I take the lower figure to be sure that I am within bounds.

(To be continued.)

## POTATOES FOR EXHIBITION.

OF late years I have not been able to take an active part in the various Potato competitions, not, however, from any lack of enthusiasm in the matter, but simply because there are too many other and more important duties requiring my attention. Not only must an intending prizewinner be prepared to devote much extra attention to any kind of vegetable with which he hopes to excel, but he must also be prepared for many disappointments, this being in each instance most apparent in the cultivation of prize Potatoes. Under ordinary culture good useful crops of tubers may be obtained, but it is only by extraordinary culture that those extraordinarily fine and handsome samples are secured. Even with the most skilful treatment failures will occur, and this will partially account for the "ups and downs" of various well-known exhibitors. Those, then, who, like myself, are unable to devote plenty of time, space, and manure to the cultivation of show Potatoes may well follow my example and postpone the attempt till such times as the fates are more propitious. It is the mixing up the show Potatoes with those intended solely for the table—or, rather, the unwise preponderance of the former over the latter—that in many cases brings the show sorts into such contempt with employers, who may not object to a few rows of fancy sorts being grown, but rightly complain when they are called upon to eat them. The quarter devoted to show Potatoes should also be known as the trial ground of new sorts, as it is only by a fair trial that anyone can discover a really serviceable variety to replace one of the by no means perfect table sorts that may be found suited to that particular garden soil. Here, for instance, we are obliged to plant Scotch Champion very extensively, but I am in hopes of eventually replacing it with one less ugly, therefore less wasteful, but possessing the more pleasing characteristics of our old favourite. Magnum Bonum we find invaluable, being invariably of the best table quality; yet in a list kindly submitted to me by a friend in Kent, and to which I shall allude at length, it has a black mark against it, this denoting inferior quality, and I mention it here to strengthen my argument that we must rely principally upon ourselves to discern which suit us best, this necessitating a trial.

Although not an actual exhibitor of Potatoes, I contrive to "keep touch" with my old hobby, this being principally accomplished by maintaining a correspondence with old friendly rivals, notably Mr. C. Howard of Bridge, near Canterbury. Mr. Howard is an amateur Potato enthusiast, who devotes his leisure time to the cultivation of the best show sorts—and by best I mean only those that are both handsome in appearance and good in quality. His 1885 record is a good one, as out of thirty-two lots staged at different shows, including the National, he won twenty-seven prizes, sixteen of these being firsts. Every season he tries several new sorts, the weeding out process being also well attended to. Last season four dozen varieties were grown, and twenty of these are now condemned, principally owing to the quality being second rate or even worse. The sorts grown for the last time in 1885 were Cardinal, Clyffe Hall, Early Rose, Edgcott Purple, Edgcott Seedling, Grampian, International Kidney, Magnet, Magnum Bonum, Pride of America, Prime Minister, Prizetaker, Purple King, Radstock Beauty, Red Emperor, Snowdrop (a sort not distinguishable from Snowflake), Sukreta, Victory, and Vermont Champion, also Synonymous and Idaho. Many of the foregoing are described in the catalogues as being of excellent quality, but in all probability the general verdict on them will eventually coincide with Mr. Howard's.

The wholesale condemnation of show varieties by non-exhibi-



tors I do not agree with, but when enthusiasts express the opinion that it is surprising how few really good eating Potatoes there are, we may feel justified in arriving at the conclusion that the only good the tottering International Society is now doing is the keeping of too many sorts before the public, the long lists of glowingly described sorts serving to bewilder and, what is still worse, to very frequently disappoint those who depend upon the catalogue descriptions. What we want, who cannot grow many sorts at a time, is the advice of independent men willing and able to give an honest opinion of the merits of all they have tried. The list of those retained by Mr. Howard should prove instructive, these being Adirondack, Alderman, Fidler's Success (late Beauty of Eydon), Beauty of Hebron, Chancellor, Cosmopolitan, The Dean, London Hero, Duke of Albany, Early Regent, Ellingtonia, Fiftyfold, First and Best, Ashtop Fluke, Mr. Breeze, Pride of Ontario, Fidler's Prolific, Queen of the Valley, Reading Hero, Reading Russet, Snowflake, Vanguard, Vicar of Laleham, Woodstock Kidney, White Elephant, and Scotch Blue, and to which are added this season Sutton's Seedling, Sutton's Abundance, The Colonel, Purple Perfection, Earl and General Gordon, these being of promising appearance.

What Mr. Howard considers a good twelve for both "table and show" are Chancellor, Snowflake or Woodstock Kidney, Fidler's Prolific, Schoolmaster, London Hero, Reading Hero, Beauty of Hebron, Edgott Purple, Mr. Breeze, Vicar of Laleham, Reading Russet, and The Dean. Where table quality is the greatest consideration he recommends the Ashleafs, Beauty of Hebron, Snowflake, Harvester, Alderman, Early Regent, Woodstock Kidney, Reading Russet, Schoolmaster, any of the Lapstones, and Reading Hero, and these used somewhat in the order given will last "in good eating all the year round." Of the foregoing the heaviest croppers are Queen of the Valley, Adirondack, Vicar of Laleham, The Dean, Fidler's Prolific, Success, White Elephant, Duke of Albany, Cosmopolitan, Fiftyfold, and Chancellor. The last-named Mr. Howard considers the finest cropping white kidney he has yet grown, and is of opinion that it will never be surpassed either for heavy cropping or exhibition.—W. IGGULDEN.

#### SHRUBBY CALCEOLARIAS.

CALCEOLARIAS are favourite bedding plants here, and in order to succeed with them I have been obliged to considerably modify the details of their treatment from that usually considered correct. The usual method of culture in many instances fails in securing beds of healthy plants, free flowering, and bright in colour. Therefore a short note on this subject may be of benefit to gardeners and others who have hitherto had some trouble with Calceolarias.

I do not think it matters much which variety is grown, that being merely a question of taste. The two I like best are Kayi, a strong-growing floriferous yellow, which from July till November affords a continued succession of bright flowers; and General Havelock, a brownish red, sort which under special treatment is as long-continued a flowerer as Kayi. This is more of the habit of the herbaceous varieties, and can hardly be called "shrubby." The flower heads are produced in moderate abundance from the dwarf growths which form the plant, and by removing the older growths a continued succession of flowers is obtained. If, however, the old flower heads are left too long the plant leaves off flowering. I have tried a large number of other sorts, but have found none to do so well as these. *C. amplexicaulis* is a beautiful variety, and is worthy of cultivation both for its beauty as a plant and for yielding a supply of flowers, but as a bedding sort it does not do so well as Kayi.

There are two main points in the treatment of Calceolarias as bedding plants which are of much importance. The first is to take the cuttings so late as to insure the plants making no top growth before spring, and the second to have the plants put into the flower beds as soon as can be safely done after they are well rooted. In order to secure the first of these I find the third week in October quite as early as the cuttings should be inserted. They may be left till the beginning of November, but, all things considered, perhaps the former is the time to be preferred. At the present time the cuttings are beginning to make roots, the tops, as a matter of course, being in exactly the same state as when they were dibbled into the frames. The appearance is not so good as that of plants which were rooted before winter, but they are just in the condition to form compact little plants, each having a ball of roots, which can be transplanted intact in the beginning of April into the flower beds.

A layer of old Mushroom-bed manure over the bottom of the bed is a great help to securing plenty of short healthy roots at transplanting time. The beginning of April is about the time to do this. When planting a little manure is worked in amongst the roots, and after the planting is finished a layer of the same spread over the beds is of very great advantage. As each plant is put out a few twigs of dead spruce branchlets are stuck round it. This serves as a protection from cold, and later on helps to support the plant as it spreads out in growing. The plants are kept free from flowers until June, when they are left to come on, so as to be well flowering by the beginning of July. If the weather is very dry about the end of May a soaking of water is given, and any time afterwards, if dry weather sets in for any length of time, the beds are soaked

with water. Under the conditions above noted we lose scarcely any plants, and I have never seen plants do so well even when double and perhaps treble the amount of labour was expended on them.

It only remains to add that the last cuttings are those not above 2 inches in length, and if they can be had as side shoots, which can be broken off from the main growths, these are all the better. The cuttings are dibbled into cold frames, protected with straw and mats from frosts, and when once the roots are protruded and growth begins the sashes are kept as much as possible off the plants.—R. P. BROTHERSTON.

#### SOME SINGLE ROSES AS DECORATIVE PLANTS.

[An article by Mr. T. W. Girlington in the "Rosarian's Year Book."]

(Continued from page 136.)

PERHAPS the most winning of the smaller-growing single Roses is *R. berberidifolia* Hardii (I.), formerly said to have been a hybrid between *R. berberidifolia* (= *simplificifolia*) and *involucrata*, but probably a seedling from *R. clinophylla* fertilised by *R. berberidifolia*. Anyway, the plant was raised by M. Hardy, at Paris, in 1844 [Date not certain.—T. W. G.] and though not simple-leaved, it follows *berberidifolia* in its yellow flowers, about the size of half-a-crown, with a purple blotch at the base of each petal. Its habit is slender, but it grows and flowers freely, and makes a most graceful and interesting plant.

Another Rose that is a first-class plant, in spite of its being afflicted with a list of names like a biographical dictionary, is *R. Sinica* (III.) (= *lævigata*, *ternata*, *triphylla*, *nivea*, *camellia*, *cherokensis*!). It would almost seem as if there had been (of course there are not now) people who on finding some well-known plant to be possessed of great merit, have got up stock, and sent it out afresh with a new name. At any rate, most of the best varieties of Apples, Pears, *Chrysanthemums*, *Roses*, &c., appear to have such a string of names, that it is like being at a Royal christening to hear them talked about. Could some such practice as this have originated the use of the word "plant," to signify a "take-in?" this of course, *sub rosa*. But to return; of all *Roses*, *Sinica* is the most easily recognisable, with its ternate, dark, glossy foliage, in texture more like that of a *Camellia* than a *Rose*, and it is admirably adapted for covering either a wall or pillar, since, in addition to being practically an evergreen, it grows with great vigour, and when established makes a lavish display of its beautiful large single white flowers. It is often called the Georgian *Rose*, from the land of its adoption, in North America, but it is believed to have been originally introduced from China.

The other Chinese *Rose*, *R. bracteata* (IV.) (Macartney) and its pretty variety, *Maria Leonida*, are two very charming *Roses*, but well-known, and perhaps hardly of sufficiently robust constitution to become general favourites. From North America, however, have come several species of considerable interest, especially two which have a more or less strong family likeness in their principal features. These are *R. nitida* and *R. lucida* (= *baltica*, *rapa*) (V.), both characterised by shining leaves composed of many (five to eleven) small oblong leaflets, stems more or less red and smooth, and rosy flowers succeeded by scarlet setaceous Turnip-shaped hips of great brilliancy. The former is the more slender plant in all its parts, and the shoots are covered with numerous fine prickles of various sizes, which, however, are not always persistent; but it is a fairly easy plant to identify, and is very well figured by Redouté. *R. lucida*, on the other hand, is a very variable species, though always attractive, with its glossy foliage to set off its rosy flowers or brilliant fruit, neither of which vary appreciably. One variety is a vigorous grower and makes a large bush, or if trained on a wall attains the height of 10 or 12 feet, and has obtuse pale-green leaflets with an uneven surface, and numerous deciduous prickles on the young growths. But the most beautiful variety does not usually exceed 2 feet in height, although very vigorous; its dark red stems armed with pairs of straight prickles support pretty rosy flowers, which are succeeded by round hips even more ornamental, gleaming among the deep green shining foliage, which itself assumes a rich purple colour before reluctantly admitting that it is not quite evergreen. In the same group (V.) *R. Woodsii* is not so interesting, but the foliage assumes pretty tints in autumn; the slender-growing *R. clinophylla* (= *laxa*) is best known through its beautiful double-flowered variety; and *R. rugosa* (= *ferox*, *Regeliana*) is generally cultivated. The white-flowered variety of the last-named is deservedly popular, but the variety *coruscans* should be grown rather than the red-flowered type. For it must be admitted that the colour of *rugosa* is of a somewhat dingy red, while *coruscans*, of similar external appearance, has flowers of the softest clear pink, with petals of wonderfully silky texture. A rich purple semi-double variety called *Comte d'Espremenil*, sent out by Nabonnand, is of interest as being perpetual, flowering freely a second time in the autumn. *R. kamtschatica*, with a habit of growth somewhat similar to *rugosa*, is inferior in every way, having much smaller red flowers.

(To be continued.)

#### ROYAL METEOROLOGICAL SOCIETY.

THE usual monthly meeting of this Society was held on Wednesday evening, the 17th instant, at the Institution of Civil Engineers, Mr. W. Ellis, F.R.A.S., President, in the chair.

Mr. G. Buchanan, M.Inst.C.E., Captain G. H. Leggett, Dr. H. C. Taylor, J.P., and Mr. J. Tolson, were ballotted for and duly elected Fellows of the Society.

The following papers were read:—

1. "General Remarks on the Naming of Clouds," by Capt. H. Toyn-



bee, F.R.Met.Soc. The author considers it important to keep to Luke Howard's nomenclature, leaving it to the observers to express by an additional word any peculiarity they notice in a particular cloud.

2. "On the Thickness of Shower Clouds," by Mr. A. W. Clayden, M.A., F.G.S. From some measurements made by the author during the summer of 1885, he has come to the conclusion that clouds of less than 2000 feet in thickness are not often accompanied by rain, and if they are it is only very gentle, consisting of minute drops. With a thickness of between 2000 and 4000 feet the size of the drops is moderate. As the thickness gets greater the size of the drops increases, and at the same time their temperature becomes lower, until, when the thickness is upwards of 6000 feet, hail is produced.

3. "On the Formation of Rain, Hail, and Snow," by Mr. A. W. Clayden, M.A., F.G.S. The author points out that all observations tend to show that, except under quite abnormal conditions, the temperature of the atmosphere falls as the height above sea level increases, and there seems no reason whatever for assuming that the law does not apply to that portion of the atmosphere which forms a cloud. Hence, if a drop were to be formed at or near the upper surface of a cloud it would fall down into a region saturated with vapour at a temperature above its own. The result will be further condensation, producing a larger drop; and this process will continue until it leaves the cloud. If its temperature is below the dew point of the air it falls through, condensation will continue until it reaches the ground. However, it is obvious that this subsequent gain cannot bear any very large proportion to the growth while falling through the saturated cloud, from which the conclusion follows that the size of the drop must increase with the thickness of the cloud. The author suggests that condensation begins on the upper surface of the cloud by the cooling of some of the liquid cloud particles. If this particle is cold enough it will solidify, and snow will be formed. Should it not be quite cold enough to solidify at once, owing to its minuteness, but remain still below the freezing point, hail is formed. Finally, if the temperature is not low enough for either snow or hail rain is produced.

4. "On Three Years' Work by the 'Chrono-Barometer' and 'Chrono-Thermometer,' 1882-1884," by Mr. W. F. Stanley, F.R.Met.Soc. The Chrono-Barometer is a clock that counts the oscillations of a pendulum formed by a suspended barometer. The upper chamber of the pendulum is a cylinder of an inch or more in diameter. By change of atmospheric pressure the mercury in the pendulum is displaced from the bottom to the top, and *vice versa*. The rate of the clock is accelerated or retarded in proportion to the displacement of the mercury. The Chrono-Thermometer is a similar clock to the above, and the pendulum is also a barometer; but instead of the lower chamber being exposed to pressure the whole tube is enclosed in a second hermetically sealed tube containing air. Atmospheric pressure being thus removed, the expansion of the included air by heat alone forces the mercury up into the vacuum chamber and alters the period of oscillation of the pendulum.

## CULTIVATION OF THE OLIVE AND WATTLE IN AUSTRALIA.

Two reports furnished recently to the Legislative Council of South Australia by Mr. J. E. Brown, the Conservator of Forests in that Colony, contain some useful suggestions relative to these trees. Mr. Brown shows that such culture should afford good returns for the labour bestowed on the tree. According to his experience, the climate and soil of many parts of Australia are highly suited to its rapid and successful growth, and from the excellent oil which has already been produced in South Australia from the fruit there is every reason to conclude that a highly remunerative and permanent industry could be established in our midst by the extensive cultivation of the tree. It is no exaggeration to state that both the climate and soil of Australia are in many respects more generally suited to the growth and fecundity of the olive than are these physical features of its indigenous habitat. Where land is already fenced and cleared the planting of Olives would cost, ordinary farm labour being employed, about 40s. per acre. The trees, planted 15 feet apart, would give 70 trees per acre. They should come into full bearing between the tenth and twelfth year's growth, from which time the net yearly proceeds would be about £3 per acre. It is said that the Olive tree reaches maturity between the fiftieth and sixtieth year. It, however, continues to bear prolifically after that period, and has been known to live until the age of 300 years and more. There is a great variety of Olives. Some grow successfully only in moist and temperate climates, while others again do best with less moisture and a comparatively high solar heat. Again, some varieties are disposed to favour soils of a fairly rich character, but which are free in consistency; while other varieties prefer sites where the soil is of a warm calciferous character. From these facts, therefore, it will be seen that in the predilections of the various varieties of the Olive tree, both as regards soil and climate, there could be selected kinds to suit the various local physical peculiarities of our vast agricultural areas. The great drawback to the industry is the fact that a dozen years must pass before a monetary return can be had for the labour bestowed. Australian farmers are advocates for quicker returns, but, nevertheless, they might in that leisure time which occurs on most farms devote a few hours to the planting of Olive plants, the cost of which Mr. Brown estimates to be about 2d. each.

Many farmers of Australia are fully cognisant of the profits derivable from Wattle trees, although few have done much in the shape of planting. The Forest Department of this colony is at present making an experiment

with Wattles on the vacant ground along railway lines; and Mr. Moses, a tanner of Armidale, has a Wattle farm. Mr. Brown shows on paper that Wattle cultivation, although years have to elapse before a return can be expected, is a branch of agriculture which will pay handsomely. He says:—"At the distances apart which I recommend the trees to be grown—namely, 4 feet to 6 feet—there will be an average of 1200 trees to the acre. In order, however, to make due allowance for barks, I shall base my calculations upon there being 1000 only to each acre. At the present time bark is selling at £7 10s. and £8 per ton, and there is every chance of a still higher price being obtained for it during the next few years. Still, to be on the safe side, I will put its value down at £5 per ton only. I give 5 tons as the probable yield per acre. That this is a low estimate will be admitted, when it is considered that this only allows for 10 lbs. of bark to be taken from each tree. I shall now give a statement of the probable revenue and expenditure during a period of seven years, in connection with a Wattle plantation, formed upon 100 acres of land specially purchased for the purpose, and upon which Wattles had not previously grown." The expenditure, allowing £3 per acre as the price of the land, would be £1792; the returns would be the value of 500 tons of bark, £2500; value of property, say £400: total, £2900. The profit, therefore, would be £1108.



## HARDY FRUIT GARDEN.

WITH the pruning and training of Peaches, Nectarines, Apricots, and Figs our winter work in the fruit garden is finished, with exception of Cob-nuts and Filberts, which are not pruned till after the catkins are fully developed, and enough of the yellow pollen is shaken from them to impregnate the little pink brush-like female blossom. In pruning and tying in the lateral growth of Figs, thin out crowded growth, but shorten no shoot which you reserve for fruit-bearing, because the fruit comes at the two or three top joints of each shoot.

In a well-managed fruit garden we now find the pruning and training of wall and espalier trees finished. Old fastenings have been examined and renewed where necessary; particular attention has been given to training the pliant growth of young trees to a correct form—and, remember, to impart any form to a fruit is only a matter of time and painstaking; all newly planted trees are fastened so securely that no wind can loosen stem and roots in the soil—we are most particular to have this well done, knowing, as we do, that unless the soil is packed closely about the roots a tree cannot thrive; mulching has been placed over the soil about every newly planted tree. A label of lead or other metal with the name stamped so deeply upon it that it is practically indelible, has also been fastened to the stem by a thick leaden wire coiled round it in such a manner that it will yield to the pressure of the expanding growth and not clasp the bark so closely as to become embedded in it; the name of each tree is also written on a plan of the garden in the exact position it occupies in the garden, as a precaution against the loss of labels, and for reference in the garden office. Earnestly do we impress upon all fruit growers the importance of this simple plan, for in nothing is there more carelessness than in keeping names to fruit trees. Quite recently a gentleman with an extensive collection of fruit was deploring the loss of names, and he might well do so, for he had originally spent £5 upon labels for them; many of the labels are now lost, and there is no plan for reference. The fruit trees are just coming into full bearing; how is the owner of them to derive pleasure from the comparison of sorts, or his gardener to acquire such knowledge of them as he ought to have?

All hush fruits should have had a top-dressing of half-decayed manure applied in autumn. If this was not done, let no time be lost in now doing it, and see that the soil among the hushes is not disturbed by digging, which only destroys surface roots and does more harm than good.

## FRUIT FORCING.

VINES.—*Grapes in Flower*.—The temperature must not be less than 60° to 65° at night, with a rise of 10° to 15° by day. Discontinue syringing, keep the glass clean, and prevent condensation of moisture by a little ventilation constantly, but without causing a draught. Shy-setting varieties will require careful fertilisation, even Black Hamburgh well repay the trouble by producing heavier bunches of evenly formed berries. Muscats in bloom should have a night temperature of 65° to 70°, and 10° to 15° rise by day; and if they are numerous a better set may be secured by the removal of the surplus bunches before they flower.

Thinning.—Keep thinning well in hand, as every swell of the berries means so much taken from the size of those that will ultimately be retained for the crop. Rules for thinning cannot well be given; it requires judgment, the capabilities of the Vines being taken into consideration. The thinning, however, should be such that a sufficient number of berries be retained to prevent the bunch falling out of shape when cut and laid upon the dish, there being just space for each berry to swell to its full extent without wedging or losing its natural form.

Stopping, Tying, and Regulating the Shoots.—Attend to disbudding as soon as the best breaks can be discerned, but it is a work that should



be done gradually. Stopping may take place one, two, three, or four joints beyond the show of fruit, as the space admits; but the greater the growth beyond the fruit the more certain is it of being well supported. We prefer stopping at the third or fourth joint beyond the bunch, and then allow the laterals to extend until the available space is covered with an even spread of foliage, and then keep closely stopped. If the space is limited stop at the second joint, or even one beyond the bunch, as it is desirable to have an extension of lateral growth and as great a spread of foliage as can have exposure to light and air. Tie the growths down before they touch the glass, bringing them down carefully, as the growths of vigorous Vines are liable to snap. Loosen all ties, so as to allow the swelling of the shoots.

**Feeding.**—Fruiting Vines in pots will need fresh surface dressings of rich material, well-decayed manure, with a sprinkling of bonemeal and copious supplies of liquid manure in a tepid state, keeping the plunging material about the pots well moistened with the same to insure the spread of the roots into it, and augment the support of the Vines. Vines swelling their crops will need liberal supplies of liquid in a weak and tepid state, and the surface of the borders mulched with 2 or 3 inches thickness of manure kept moist to encourage surface-rooting. Maintain a genial condition of the atmosphere by damping available surfaces two or three times a day, especially at closing time, which should be sufficiently early to run up the temperature 5° to 10° over the ordinary day temperature from sun heat. Sprinkling the floors with liquid manure in the evening will invigorate the Vines and prove injurious to insects, particularly red spider.

**PINES.**—As the summer, or what is known as the London season, is the most important to growers under the changed circumstances that obtain in Pine Apple culture, winter fruit commercially being out of the question in competition with foreign fruit, the cultivation of summer varieties has been greatly extended, among which the Queen stands unrivalled, both on account of its excellent quality and its adaptability for the purpose, good fruits being obtained in eighteen months from the starting. It is well to have two groups of plants, one being a selection of the most vigorous of the autumn-potted suckers which have been kept moving through the winter, these plants being put at once in 10 or 11-inch pots, and plunged in a bottom heat of 90° at the base of the pots. The others are those started about this time as suckers, which as soon as they are sufficiently rooted are shifted into 10 or 11-inch pots and plunged in a similar bottom heat. Keep the night temperature at 60° to 65°, and 70° in the daytime by artificial means, with an advance of 10° from sun heat. It is essential that the plants have plenty of space, and be kept well up to the light, as a good sturdy growth is essential to success. Where rootless suckers are placed, keep the atmosphere moist and close, and withhold water until the roots are showing at the sides of the pot.

**STRAWBERRIES IN POTS.**—Unsuitable weather for forcing necessitates continued vigilance and perseverance in forwarding early crops. A good set having been secured on the earliest plants, and being thinned to the number likely to swell satisfactorily, they should be removed if possible to a house with a maximum temperature by artificial means of 65° to 70°, a Cucumber or Melon house being suitable until the fruits begin to change colour, as they swell best in a high moist atmosphere, but when ripening a drier atmosphere is necessary. The change of temperature must not be sudden or the fruit will not swell freely; indeed, the temperature should remain the same so as to secure a clear skin and bright colour—the great merit of a forced Strawberry. Feed liberally during the swelling period up to changing colour, giving it warm and weak, and if the roots are in good condition they will take large quantities if evenly swelled fruit is desired.

#### PLANT HOUSES.

**Vandas.**—These, as well as *Aerides* and *Saccolabiums*, should be top-dressed or repotted, as the case may be. Those that were repotted last year will only need top-dressing. Whether the plants are grown in pots, pans, or baskets, the whole of the old material should be removed and fresh chopped sphagnum moss supplied. When all the material has been removed to the crocks or charcoal used for drainage, or as a medium for the lower roots, if any small decomposed particles remain they should be washed out by pouring tepid water into the pots, or by dipping them into a tub of water. These must be allowed to dry again before the new top-dressing is applied. For this purpose sphagnum moss only should be employed. No attempt should be made to cram the roots into the pots, for they will remain much healthier outside. The moss should be well elevated above the rim of the pots or sides of the baskets, and the greenest and best heads used on the surface, encouraging them to grow afterwards by frequently dewing the surface with the syringe. When repotting is necessary the material should be carefully picked out of the roots, crocks, and drainage, as well as the moss, and the plant lifted out of the pot if possible; if not, the pot must be broken and any portions left to which the roots are clinging. Place a fair quantity of crocks at the base of the pot, in fact as many as can be conveniently put in before the plant is in position. When this is done, if a stake is needed, give it at once, as it cannot well be secured afterwards when the pot is filled with crocks. After the plant is in position, the crocks, charcoal, or both should be laid carefully amongst the roots, filling the pot to within 2 inches of the rim. On the surface use a few smaller crocks to prevent the moss being washed down amongst the lower drainage. Fill the remainder of the pot with moss, the same as advised for top-dressing. When the plants are turned out cut away all dead and decaying roots with a sharp knife. When plants are growing in baskets it is often impossible to take them out without destroying a large quantity of roots. The safest method is to remove as much of the basket as possible, and then place the remainder, with the

roots attached, into the larger ones. The space between the two baskets—that is, the new and the old one, should be filled with lumps of charcoal and then surfaced with moss to sustain plenty of moisture about the plants. From this time never allow the moss about the plants to become dry, and keep the atmosphere moister than has been the case up to the present. Do not syringe these plants for a few weeks, except giving a slight dewing during the mornings of very fine days. The temperature for this structure must not fall during the night below 65°, except during very cold nights. No ventilation will be needed at the present time.

**Phalenopsis.**—If grown in the same house as the above, the conditions as regards heat and moisture will suit them exactly. It is necessary to watch these plants carefully, so that yellow thrips do not become established on the under side of their beautiful leaves. If observed, sponge at once with a weak solution of tobacco. These plants are grown here in baskets in lumps of charcoal and sphagnum moss; the former nearly fills the baskets, and the latter is worked in amongst them towards the sides with a good layer on the surface. The moss becomes too decayed for their well-being in a single season, and is in consequence removed annually. All small particles are washed out the same as advised for *Vandas*, and then fresh is given. When new or larger baskets are required, no attempt is made to disturb the roots by the removal of any portion of the basket until thoroughly decomposed, so that it can be removed without the slightest injury to the roots. Place the old basket inside the new one, and fill the space between with charcoal, and then moss it over as detailed for top-dressing. After potting or top-dressing, the moss should be encouraged to grow freely by syringing frequently, the use of the syringe being increased as the days lengthen and the atmosphere outside becomes warmer. Any plants in full bloom may be left for a time, so that the syringe need not be used for fear of spotting their flowers. The flowers of these plants, as well as those of any other Orchid, last much longer in a cooler and drier atmosphere, but we never remove *Phalenopsis*, for in the past we have had them seriously checked by so doing.

**Cypripediums.**—The majority of these that are growing in warm structures may be repotted and top-dressed without farther delay. Any plants in flower or coming into flower that it may be necessary to remove to a cooler structure may be left until the flowers have faded. For these plants we prefer peat fibre and sphagnum moss in equal proportions, with lumps of charcoal freely intermixed. We usually employ the peat fibre and charcoal towards the base; in fact, fill to the rim of the pot, and then the remainder with the sphagnum intermixed. The fibre does not decompose so quickly as the moss, and by this means the whole of the upper portion is removed annually, which insures a sweet compost about the roots of the plants without the removal of the whole every year. The majority of *Cypripedes* will stand without apparent injury decayed compost about their roots for a longer period than most Orchids; but this is not desirable, for they prefer a sweet medium. When plants are left too long with their roots amongst sour soil they are liable to become spotted in their foliage and seriously disfigured. When these plants are repotted it is often necessary to break the pots or pans in which they are growing, for the roots cling tenaciously to the sides and cannot be turned out without injury. When removed from their pots take every particle of soil from amongst their roots, and if in a very bad state the roots should be washed before they are placed in clean pots with fresh material. Place a good layer of moss on the surface, and encourage it to grow after the completion of potting and top-dressing. The plants may be lightly syringed when there is a prospect of a fine bright day. Care must be taken that tepid water be used for this purpose, and also for watering these as well as all other plants in this department. Much injury is often done by inattention to this, as plants of *C. insigne* cease flowering in the conservatory. They should be started into growth where a temperature of 50° can be maintained at night. *C. villosum* now in flower will take its place in the conservatory and be benefited for a few weeks by being in a lower temperature. *C. venustum* is employed for the same purpose.

## THE BEE-KEEPER.

### ABOUT BEES.

(Continued from page 140.)

THERE has been a great number of runaway swarms. A neighbour keeping bees in skeps lost three out of four hives, and two cottagers have secured swarms that came from a hollow tree colony. I was asked several times if I had lost any swarms, as several had been found, but I always was asked after they had been secured. Unfortunately none of the runaways came my way, as I should have been delighted to make their acquaintance, particularly the swarm from the wild bees in the tree, and I failed to purchase one of the wildling swarms.

What I failed to purchase were given me, and had to be sent some fifty miles by rail. They came to hand in September in a skep, and apparently all right, the hive being, of course, inverted, or bottom upwards. I intended keeping them in the skep, so had a stand made, and as there was only the turning over to do after removing the covering, I merely threw the dress over my



head, and turned the hive right side upwards. Imagine all the combs had broken from their attachments and fell on the board in a heap. There were no cross pieces in the hive, and it was only what might have been expected. Without loss of time I got a hive, one that the bees had died out of in spring, full of store, and set to work to get the bees out of the skep into it. I had to take every piece of comb and brush the bees off—no easy matter, as the other bees had sniffed the nectar, and would not be driven from the spoil. I brushed all in, friend and foe alike, keeping a sharp look out for the queen, and found her at last in the hive smothered with honey, but able to crawl, and I put her in and placed the cover and top on. The dress being only thrown over the head the bees got inside, and in the endeavour to get out became irritated and stung me in the lip. I had four distinct stings that I could make out afterwards, but there was no time then for such trifles; off went the dress, and into a pail the comb and bees, for it was black with rogues or the rightful owners. I left them in that way, for it occurred to me that to take them away might cause the strangers, if there were any on the comb, not to get back to the hive, and with smoker I returned and soon cleared out the bees and covered the comb. As I expected, there were many of the bees with the comb, the rogues sped home or fell on the debris, the rightful bees settled on the shrubs near, and resting awhile took wing. After awhile I saw them gathering in as after hiving at swarming, and then I noticed a fierce struggle taking place, bees trying to get into the hive, bees rushing out, evidently those put in with the rightful ones off the comb, and fighting going on all along the flight board. I narrowed the entrance, and then none entered from the outside but those having business, and to ease matters inside lifted the cover and quilt and let out a cloud of bees; never were prisoners more happy at release. I thought of nothing but the bees outside now, as they had ceased drawing, but as night came on they made for the hive, and most of them landed safely, though I have no doubt many were lost. The work of ejecting the dead I found going on after dark, and in the morning the number in front of the hive was considerable. The bees held their own, and kept it. The swarm was a second one.

This brought the total up to twenty, so that by one means or other I have just doubled the stocks. I fed all in late summer and autumn until they would not take any more down, and then covered them for the winter. The wet I found had got into three hives, the chaff enclosed in bags filling the cover was saturated and the quilts soaked. I found the bees all right, so put fresh quilts and dry chaff, and stopped the crack in the cover with white and red lead, hoping for the best. Though there are second swarms there is plenty of uncapped cells. The bees in these hives only occupy about half the bars, but I did not move the dummy so as to contract the hive as I was told I ought, and as everybody does, only I did so last winter with some, and others not, and I found the last did far the best, filling the whole of the bars or hive sooner, and swarming sooner by a fortnight. If we have sun and warmth I shall feed the bees; if the cells are filled with syrup they will sooner fill the supers with honey, and I shall use peameal outside under cover if necessary, and await the issue.

I will now allude to how five stocks only were profitable as regards swarms, though six swarmed. The stock was a second swarm of the year before, and one that had the hive contracted in winter. It looked liked swarming for quite a fortnight before it issued, and I thought it would never come, but one day the bees rose and kept on the wing a considerable time, and instead of clustering settled on the shrubs in the locality of the hives, being spread over a large area. They were evidently tired by their prolonged flight. They did not draw home quickly, and I concluded the queen had gone away with at least a portion of her subjects, which, however, proved mere conjecture, as upon examining the stock hive I found the queen on the ground directly in front of the hive, and struggling to escape from the few bees that surrounded her. I had a hive in place of the stock in no time, and put her majesty inside from the top, and the poor creature made frantic efforts at escape from the hive, and strove to take wing when on the top of the bars. She appeared incapable of flight, and did nothing but run about the bars on the foundation comb. The bees came in now rapidly, and I put on the quilt and cover, and made them enter by the entrance, watching to see that the queen did not escape. After a time I lifted the quilt and found the bees clustered at the top of the bars, and so concluded that the queen had been accepted, but to my consternation shortly after found there was none of the "knitting"—I know no better term for it—going on, as is the case when bees have been hived after swarming, and at all times when there is a queen in the hive. I got in all the bees I could,

indeed a strong swarm, and then moved the hive to another place, and replaced the stock hive in its old position. The bees all left the hive and returned to the stock, and what became of the queen I could not discover. She was not in the hive dead nor near it.

A general idea prevails that the queen leads in swarming. I think this entirely erroneous, as I have seen bees in search of a domicile long before the swarm has issued. In one instance I noticed a complete line over 200 yards from where bees were located in the roof of a house to another building, which they searched all around the eaves, and continued to do for several days before a swarm issued, which took to another building much further off, but in the same direction they had been scrutinising previously, and they went to it straight as an arrow. I have noticed that in swarming there are some bees in advance of the others, and the queen, especially when the bees rise high, comes out late, the bees being very much spread as if in search of, or to prevent her escaping. Wild bees, no doubt, have their destination marked out before they set out, or they would not go direct to hollow trees or the roof of buildings, though the queen may not be able to accomplish the journey in the first instance without settling or resting or coming in contact with trees have the journey arrested. Even hive bees exhibit this instinctiveness, especially those of skeps; but those of bar frames, being more domesticated, show it by not going far before settling, even joining another before going in search of a domicile to themselves, necessity in this, or in other things, being the mother of invention. In doing the queen does not go up until a number of bees have left, so that we may conclude she does not take the lead in swarming, but is entirely a ruler only by the expressed desire of the subjects.

Though there were Ligurians and Carniolians within half a mile, it was not until this year that our stock showed any trace of cross-fertilisation. One of the second swarms has many half-bred Ligurians mingled with the black, and I presume the mother was crossed by a Ligurian drone, and that the progeny will be half breds, the stock entirely of this character as the blacks die off.—G. ABBEY.

#### FEEDING BEES—MANAGEMENT OF STOCKS.

WOULD "Felix" say if I have done right in giving (Feb. 7th) three of my lightest stocks candy? because those three have come out in greater numbers since than any others, and have sought water in some spouts attached to my greenhouse 10 or 20 yards away, and very many perished therein. Another point I desire enlightenment on is stocks. After having thrown the first swarm are they queenless for eight or nine days? If so, I should like to know if I can join a queen to them just after swarming? I have only one stock in a frame hive, and I purpose feeding it up from 1st of April to 1st of May, then take an artificial swarm; eight or nine days after that to lift every frame containing a queen cell out, putting them into a large hive I have made to hold twenty-four frames with an entrance opposite every four frames, as I place the frames in putting a frame of foundation on each side of them, then a division board, and so on till the hive is full. Is it a wise plan? If not I should be glad to have its defects pointed out. I have eight stocks altogether. They seem all right as yet. I hope to get about eight swarms in spring from them, but not having much room for them I intend advertising them for sale soon. I should be glad to learn if, when packing them for a journey, they will be able to eat through one or two thicknesses of canvas, similar in strength to manure bags, if I use that material to cover the mouths of the skeps.—J. T., *Yorks*.

[If your stocks were so light as to cause anxiety lest there should not be a sufficiency of food to sustain the bees until a more suitable time for feeding had arrived, you followed the customary course in giving candy instead of syrup, the preference being given to the former because the latter excites the bees to greater activity than is good for them at this early season. Bees, however, are naturally now all anxiety to commence work, breeding already going on extensively in many stocks; hence the slightest interference with the hive, much more administering food of any description, will cause excitement, which will be increased if the bees are not numerous enough to throw off moisture sufficient to soften the candy, and they have therefore to go to the fields to get water to soften the cake provided for them before they can make use of it, if the water is not supplied by the bee-master within the hive. In these early journeys many inevitably perish chilled by the cutting winds of spring, and if in addition they seek water in vats or even in spouts, where water is allowed to lie in sufficient depth, many will perish. Probably in your case the cold had chilled them and rendered them unable to return home. If they do get "drowned," the only remedy is to supply water either in the hive or near the apiary, and if the latter place in it straws or stones, upon which the bees may rest in safety and so escape from danger.]

The stock from which a first swarm has issued is without a queen, generally speaking, for about ten days, while that from which a swarm has been driven is queenless for fourteen, unless it should so happen that queen cells had already been formed and tenanted before the swarm was



made. The advantage of giving a queen, or a ripe queen cell even, will be manifest, for if a stock be swarmed on the 10th of May artificially there will in ordinary cases be no queen hatched until the 24th, and on an average, say four days will elapse before fertilisation is effected, and ten days after fertilisation, before egg-laying commences, thus it will be the 19th of June before an egg is deposited. If, however, a queen is given, even if unfertilised, or even a ripe queen cell, on the 10th, on the 24th egg-laying will commence, and the stock will rapidly gain in strength. By all means introduce queens or queen cells as speedily as possible, observing usual precautions immediately after the issue of a swarm.

In another article I will endeavour to show the best means of bringing a stock up to swarming point at the earliest possible moment, so this point as regards stimulating may be passed over without further comment.

The method of procedure proposed with the frame hive is objectionable in every way. A strong stock is spoilt unnecessarily; the nuclei are placed under the same roof, with entrances in close proximity, thus insuring the death of some of the young queens, who when returning from their marriage flights may easily mistake their own abode. The foundation cannot be drawn out, for there will not be bees sufficient, and amongst other objections the heat of the nuclei will be perilously reduced without necessity, so that the queens even if they emerged from the cells might very possibly be of inferior quality, and most certainly would be inferior to those raised in the usual manner under more favorable conditions. Far better to utilise the hive in the usual way, either as one large hive, contracted if necessary, or as two moderate sized ones, having the entrances as far apart from one another as possible. What I would suggest as an alternative to this method is to take an artificial swarm from the stock in the bar-frame hive in the usual manner, allowing the bees to raise their own queens in their own fashion. When the time has arrived when the queen cells are ripe the rest of the stocks may be swarmed, and one queen cell be given to each, and this may be done with little difficulty if only ordinary care is exercised; carefully lifting out one of the frames on which queen cells are seen, cut off the cell with a piece of comb attached, taking every precaution not to crush the infant queen. This cell may now be placed in the stock from which a swarm has been taken, putting the queen cells pointing downwards between two combs, and fastening it in position, the bees when once they have missed their sovereign gladly accepting a successor thus easily given. By this means time is saved, and the stock from which the cells are taken does not suffer in the least if one cell be left.

Unless swarms are desired they may be with almost certainty presented, but if increase is desired the swarm may be safely packed in a skep, and the bees will be quite secure if a piece of cheesecloth be stitched over the mouth of the skep, and a plain label be annexed "This side up." The alternative covering you mention would no doubt answer the purpose, but cheesecloth is preferable and not expensive. For very long distances wire fly-proof netting may be necessary.

The questions were of such general interest to bee-keepers that I have answered at greater length perhaps than the Editor wished, but if so, a desire to make my meaning plain must be my apology for trespassing upon his valuable space.—FELIX.]

### TOMTITS v. BEES.

ON carefully looking over Mr. Hiam's remarks on bees and their enemies, I was surprised to find that our able friend agreed that the little birds—namely, the tomtits, were harmless. I differ from Mr. Hiam on this point. I find them very destructive among our hives during the winter and spring months. I have frequently watched their movements among the trees during the last few days, which gave me every reason, I thought, for simply asking if other apirians have found the birds to be destructive in the way I am about to mention. Our hives stand in the kitchen garden facing full south, so as to catch the morning sun, and to be sheltered as much as possible from the cold winter winds, which have been very trying lately for our little feathered and winged friends. No doubt Master Tommy has taken a greater advantage of the bees than he would have done if the weather had not been so severe; but at all events one does not come amiss with him at almost any time when he sees the way clear. He will soon be down on the alighting board, and as soon as poor Apis puts in his appearance he is immediately seized and carried off to the most convenient place, which generally proves to be the nearest tree. There are some small Apple trees close to the hives, and on examining underneath them I was surprised to find so many lifeless bees which had been treated in the way explained. I should be pleased to hear if any other bee-keepers have found the black-capped tomtit to be destructive in the way I have mentioned.—G. H. P.

members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Books (J. C.).**—Mr. Cole's work, the "Royal Parks and Gardens of London," can be had from this office, post free for 2s. 11d.

**Trap for Woodlice (G. F. B.).**—There is no better trap for woodlice than a boiled Potato wrapped in a little hay loosely, and placed in a small flower-pot laid on its side near their haunts. The woodlice will enter and feed on the Potato, remaining secreted in the hay, and being examined every morning they may be shaken into a vessel containing boiling water. This continued for a time will soon rid the house of the pests, having baits in proportion to the size of the house.

**Dendrobium nobile not Flowering (Idem).**—Growth in place of flowers is a consequence of the imperfect ripening of the pseudo-bulbs, the plants being kept at too great a distance from the glass and not having sufficient light with a reduction of moisture so as to harden them. As the growths reach maturity withhold the supply of water, removing the plants into a cooler and drier atmosphere, with full exposure to light and sun, in order to thoroughly ripen them. Water should only be given during the resting period to prevent shrivelling. A temperature of 50° artificially is suitable during the resting period. All that is wanted to restore their floriferousness is to secure a good growth and ripen it thoroughly.

**Peas for August (A. B.).**—You cannot ensure a supply of the best pods for exhibition in August from one sowing, because you cannot forecast the weather, and there is necessarily a considerable difference in the time in which Peas develop, according as the summer may be wet or dry, hot or cool. Telegraph and Duke of Edinburgh (which you name) we should sow quite at the end of April, making at least two sowings afterwards as the plants appear for affording pods towards the end of August. Evolution is one of the best Peas for exhibition at the time named, and is one of the most continuous bearers. It is large, dark, green pods.

**Roses for Church Tower (A. B.).**—You will obtain the most satisfactory result from the hardier kinds, such as Dundee Rambler and Riga of Ayrshire, Crimson or Amadis, Blush, Elegans, and Inermis of Bonrsault; Madame d'Arblay of hybrid climbing, and Felicite Perpetue, with Williams' Climbing of the evergreen sections, William Allen Richardson (Noisette) is one of the best climbing Roses; fitting companion Roses are Reine Marie Henriette, Chesbunt Hybrid, and Gloire de Dijon, all Tea-scented. Passiflora coerulea is the name of the common hardy Passion flower. Clematis are very fine, and associate well with Roses. Jasminum nudiflorum and J. officinale majus would be suitable. The finest of the Ampelopsis is A. hirsuta, A. Veitchii is very attractive, and A. sempervirens has evergreen foliage but not very hardy.

**Vine Roots Unhealthy (W. J.).**—Some of the roots you have sent are quite dead. We have no data to guide us as to cause. It may be the result of ungenial soil, or of the foliage falling prematurely last summer through drought, debility, or the attacks of insects. We assume they are in an inside border, and if so that may have become too dry. You have done right in giving liquid manure, also in removing some of the old soil and placing fresh in contact with the roots. Cover this with good manure by-and-by, so that the soil is kept moist; roots will then form near the surface, and can then be fed with top-dressings of fertilisers washed in, or liquid manure. The border must also be moist right down to the drainage. You cannot start the Vines too steadily. Disbud in due time, so as to prevent any interlacing of the laterals and overcrowding of the foliage, and the Vines will improve.

**Various (H. H.).**—Stout cuttings of the young growths of Hydrangea paniculata will strike in pots of sandy soil surfaced with pure sand kept moist, and the leaves fresh in a warm propagating case or hotbed have a temperature of about 65°. The cuttings must not be very soft. Perhaps a better plan is to insert cuttings of half-ripened wood under handlights in a shaded position in the garden in the summer. We should try the former plan in your case, inserting all the young growths except two or three at the base of each branch, cutting back to these after taking the cuttings from the parts above. You may give more root room to your Maréchal Niel Rose in the manner you propose now. We should also remove as much of the old soil as can be done without materially disturbing the roots, adding fresh turfy loam, pressing it down firmly. Give fertilisers or liquid manure after the plants start growing freely, never allowing the roots to get dry, yet the soil must not be saturated. Acacias are propagated by inserting cuttings of the young wood just when getting a little firm in sand under bellglasses in a temperature of about 60°. Quassia water will destroy aphides and it does not stain. Boil 4 ozs. of chips for twenty minutes in a gallon of soft water, then add three gallons of cold water, stir well, and it will be ready for use.

**Orchid and Gardenia Flower Buds Falling (W. J. C.).**—Probably you have kept the Orchids named too dry at the roots, and though at this time of year liberal supplies of water are dangerous, yet the other extreme is fatal to the flowers. Give them as light a position as possible, and keep the peat and moss well moistened; this may save those that remain upon the plants. The flower sent in the letter is too much crushed to be recognised. The Gardenias are suffering in a similar way, either because they have had a check at some time, or because the bottom heat is insufficient. They should be plunged in bottom heat that can be kept at about 80°, with an atmospheric temperature about 10° lower. If the plants are syringed twice daily the buds will develop quickly. If the pots are full of roots



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or



weak stimulants may be given, or better still, a little artificial manure applied to the surface. In the later batches the roots must be kept steadily growing, or the flower buds when they appear will be puny if not deformed. In the majority of cases the deformity and falling of the flower buds of these plants is due to inactivity of their roots and strong supplies of liquid manure during the time root-action is defective. Strong insecticides will also cause the same results when applied as the buds are forming.

**The Eucharis Mite (W. J.).**—The bulbs you sent are badly infested with "the mite," which you can easily find if you examine some of the others with a pocket lens. The best plan will be to turn all the plants out, turning the soil or removing it to a distance, and it must not be employed again for plants. Well wash the bulbs in a solution of softsoap and petroleum, 2 ozs. of softsoap with a little soda dissolved in a gallon of boiling water, and stir in very briskly while hot a small wineglassful of common petroleum, applying this as hot as the hand can be borne in it, rubbing it into every crevice with the aid of a soft brush. That has answered in the case of some infested bulbs, another cultivator having found a similar mixture of Gishurst compound and Fir tree oil efficacious, except when the insects eat quite into the bulbs. In that state they are beyond cure, and should be burned. Place them in rather small well-drained pots in turfy loam, adding sand and crushed charcoal to keep it sweet and porous, placing some of the latter in contact with the bulbs. Plunge the pots in a bottom heat of 80° to 85°, if convenient in a stove or pit having a night temperature of 65°, applying water cautiously and judiciously. When the plants are established they require copious supplies of water when flower stems are visible, liquid manure to support good foliage, and when this is fully developed a gradual reduction of water and a rest of six weeks or so. Then when placed in heat, they throw up another series of spikes.

**Good Florists' Flowers (Young Gardener).**—The following are all good varieties of their kinds, and will form excellent representative collections:—Twenty-four Carnations.—Scarlet Bizarres—Admiral Curzon, Fred, George, Robert Lord. Crimson Bizarres—Master Fred, J. T. Hextall, Harrison Weir, Thomas Moore. Pink and Purple Bizarres—Sarah Payne, Falconbridge, Squire Llewellyn, James Taylor. Purple Flakes—James Douglas, Dr. Foster, Squire Meynell, Mayor of Nottingham. Scarlet Flakes—Clipper, Sportsman, John Ball, Dan Godfrey. Rose Flakes—John Keet, Sybil, James Merryweather, Mrs. Lodwell. Twenty-four Show Dahlias—Chris. Ridley, James Cocker, Hon. Mrs. P. Wyndham, Henry Walton, James Vick, Goldfinder, Prince Bismarck, Joseph Ashby, William Rawlings, Alexander Cramond, Ethel Britten, Julia Wyatt, Ovid, Thomas Goodwin, Toison d'Or, Mrs. Henshaw, Paradise Williams, John Downie, John Bennett, John Standish, John Wyatt, Lady Goltightly, Leah, Lord Derby. Twelve Bedding Dahlias—Rising Sun, George Thomson, Mont Blanc, Little Wonder, The Pet, Cloth of Gold, Dark Model, Flora MacDonald, Faust, Royal Purple, Prince Frederick William, Aurora. Twelve Pompon Dahlias—Fireball, Lady Blanche, Amelie Barbier, Little Arthur, Prince of Lilliputians, Dove, White Aster, Crimson Beauty, Burning Coal, John Sandy, Louis Rodani, Triumph. Twenty-four Fuchsias.—Single Dark Varieties—Sir W. G. Armstrong, Lord Falmouth, Enoch Arden, Try Me Oh! Resplendent, Rev. T. Wiltshire. Single Light Varieties.—White Tubes and Sepals—Beauty of Trowbridge, White Souvenir de Chiswick, Covent Garden White, Marginata. White Corollas—Cannell's Gem, Delight. Double Dark Varieties—Avalanche, Sir Garnet Wolseley, Alpha, Prince Leopold, King of the Doubles, Extraordinary. Double Light Varieties—Mrs. H. Cannell, Kingsburyana, Miss Lucy Finnis, Marchioness of Anglesey, Edelweiss, and Chicago. Twelve Show Pelargoniums—Cicely, Artist, Purple Gem, Ruth, Prince Leopold, Virgin Queen, Charles Turner, Corsair, Despot, Meteor, Purity, Potentate. Twelve Ivy-leaf Pelargoniums—Madame Thibaut, Alice Crousse, Emile Lemoine, Abel Carrière, Jeanne d'Arc, Comte Horace de Choiseul, H. F. Barron, Josephine de Hohenzollern, Souvenir de Charles Turner, Rubens, Gloire d'Orleans, Viscountess Cranbrook. Twenty-four Picotees.—Heavy Red-edged—John Smith, J. B. Bryant, Brunette, Master Norman. Light Red-edged—Thomas William, Violet Douglas, Mrs. Bower, Elsie Grace. Heavy Purple-edged—Zerlina, Mrs. A. Chancellor, Alliance, Tinnie, Muriel. Light Purple-edged—Ann Lord, Clara Penson, Her Majesty, Minnie. Heavy Rose and Scarlet-edged—Mrs. Payne, Miss Horner, Fanny Hellen, Edith Dombrian. Light Rose or Scarlet-edged—Mrs. Allcroft, Miss Wood, Nellie, Miss Gorton. Hybrid Perpetual Roses for Exhibition.—Marie Baumann, Charles Lefebvre, La France, Baronne de Rothschild, Louis Van Houtte, Etienne Levet, Alfred Colomb, François Michelin, Marie Rady, Madame Victor Verdier, Marquise de Castellane, A. K. Williams, May Quennell, Marie Finger, Star of Waltham, La Rosière, Général Jacqueminot, Duchess of Bedford, Duchesse de Vallombrosa, Mrs. Baker, Madame Lacharme, Sir Garnet Wolseley, Mons. E. Y. Teas, Magna Charta. Twenty-four Verbenas.—Lord Brooke, Striata, Distinction, Fairy Queen, Purity, Dr. Feyerlin, Queen of Verbenas, Reine des Roses, Delicata, Blue Boy, Ball of Fire, La Grande Boule de Neige, Warrior, Carminata alba, Burns, August Renz, Apollo, Baron Von Berchem, Edward Perkins, Flower of Dorset, Lord Cranbrook, Lustrous, Mabel, and Swanley Gem.

**Names of Fruits.**—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. (W. L. Bird).—Apples: No. 1, Newtown Spitzenberg; 2, Not known. Pears: 1, Bellesime d'Hiver; 2, Glou Morceau. The Fern is Woodwardia radicans. (H. Hewat Craw).—We believe your Apple to be Robinson's Pippin.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and named florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (Col. Trevor Clarke).—The one with bipinnate leaves is *Acacia dealbata*, the other with broad long phyllodes is *Acacia longifolia*. (Woodbine).—*Acacia dealbata*. (Hortus).—1, Apparently a member of the natural order Melastomaceæ, but the material sent was insufficient to determine what species it is; 2, *Erica barbata*; 3, *Gasteria verrucosa*. (A Young Gardener).—1, *Juniperus recurva*; 2, *Thuja occidentalis*; 3, *Cupressus torulosus*:

4, *Æschynanthus pulcher*; 5, Cedar of Lebanon. (H. M.).—1, *Asplenium flaccidum*; 2, *Polystichum angulare*; 3, *Polystichum aculeatum lobatum*; 4, *Pteris cretica albo-lineata*; 5, *Asplenium bulbiferum*. (W., Reading).—Yes, your plant is *Oncidium dasystyle*, and is a native of the Organ Mountains, Brazil, whence it was introduced by Mr. B. S. Williams. In typical specimens the pseudo-bulbs are about 1½ inch high, elliptical, and the leaves 5 inches long by 1 broad.

## COVENT GARDEN MARKET.—FEBRUARY 24TH.

BUSINESS better, the improvement in Grapes being well maintained. Forced vegetables in demand.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	½ sieve	1 0 to 3 6	Oranges .. .. .	100	4 0 to 6 0
„ Canadian ..	barrel	10 0 12 6	Peaches .. .. .	per doz.	0 0 0 0
„ Nova Scotia ..	„	10 0 12 6	Pears, kitchen ..	dozen	1 0 1 6
Cobs, Kent .. ..	per 100 lbs.	27 6 30 0	„ dessert .. ..	dozen	0 0 0 0
Figs .. .. .	dozen	0 0 0 0	Pine Apples English ..	lb.	1 0 1 6
Grapes .. .. .	lb.	2 0 5 0	Plums .. .. .	½ sieve	0 0 0 0
Lemons .. .. .	case	8 0 10 0	St. Michael Pines ..	each	2 0 6 0
Melon .. .. .	each	0 0 0 0			

### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	dozen	1 0 to 0 0	Lettuce .. .. .	dozen	1 0 to 1 6
Asparagus .. ..	bundle	2 0 8 0	Mushrooms .. ..	punnet	0 6 1 0
Beans, Kidney ..	lb.	1 6 2 0	Mustard and Cress ..	punnet	0 0 0 0
Beet, Red .. .. .	dozen	1 0 2 0	Onions .. .. .	bunch	0 3 0 0
Broccoli .. .. .	bundle	0 9 1 0	Parsley .. .. .	dozen bunches	2 0 3 0
Brussels Sprouts ..	½ sieve	3 0 4 0	Parsnips .. .. .	dozen	1 0 2 0
Cabbage .. .. .	dozen	0 0 0 0	Potatoes .. .. .	cwt.	4 0 5 0
Capiscums .. ..	100	1 6 2 0	„ Kidney .. ..	cwt.	4 0 5 0
Carrots .. .. .	bunch	0 3 0 4	Rhubarb .. .. .	bundle	0 2 0 4
Cauliflowers .. ..	dozen	2 0 3 0	Salsafy .. .. .	bundle	1 0 0 0
Celery .. .. .	bundle	1 6 2 0	Scorzonera .. ..	bundle	1 6 0 0
Coleworts .. .. .	doz. bunches	2 0 4 0	Seakale .. .. .	per basket	2 0 3 0
Cucumbers .. ..	each	0 6 1 3	Shallots .. .. .	lb.	0 3 0 6
Endive .. .. .	dozen	1 0 2 0	Spinach .. .. .	bushel	2 0 4 0
Heros .. .. .	bunch	0 2 0 0	Tomatoes .. .. .	lb.	0 9 1 6
Leeks .. .. .	bunch	0 3 0 4	Turnips .. .. .	bunch	0 4 0 0

### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0 to 18 0	Ficus elastica ..	each	1 6 to 7 0
Arbor vitæ (golden)	dozen	6 0 18 0	Ferns, in variety ..	dozen	4 0 18 0
„ (common) ..	dozen	6 0 12 0	Foliage Plants, var.	each	2 0 10 0
Arum Lilies .. ..	dozen	12 0 18 0	Genistas .. .. .	dozen	10 0 12 0
Azaleas .. .. .	dozen	24 0 42 0	Hyacinths .. .. .	dozen	6 0 9 0
Begonias .. .. .	dozen	6 0 12 0	Marguerite Daisy ..	dozen	8 0 12 0
Bouvardia .. ..	dozen	12 0 18 0	Myrtles .. .. .	dozen	6 0 12 0
Cineraria .. .. .	dozen	10 0 12 0	Palms, in var. ..	each	2 6 21 0
Cyclamen .. .. .	dozen	12 0 24 0	Pelargoniums, scarlet, doz.	6 0 9 0	
Cyperus .. .. .	dozen	4 0 12 0	Poinsettia .. .. .	dozen	0 0 0 0
Dracena terminalis, dozen	30 0 60 0		Primulas, single, dozen	4 0 6 0	
„ viridis .. ..	dozen	12 0 24 0	Solanum .. .. .	dozen	8 0 12 0
Erica, various ..	dozen	12 0 24 0	Spirea .. .. .	dozen	12 0 18 0
Euonymus, in var.	dozen	6 0 18 0	Tulips .. .. .	12 pots	6 0 9 0
Evergreens, in var.	dozen	6 0 24 0			

### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. ..	12 bunches	2 0 to 4 0	Lilies of the Valley, in		
Acacia (Mimosa), Fr., per			clumps or pots, per doz.	15	0 to 30 0
„ bunch .. .. .	1 0 1 6		Lily of the Valley, 12 sprays	0 9	1 6
Arum Lilies .. ..	12 blooms	4 0 6 0	Marguerites .. ..	12 bunches	6 0 8 0
Azalea .. .. .	12 sprays	0 6 1 0	Mignonette .. ..	12 bunches	3 0 6 0
Bouvardias .. ..	per bunch	0 6 1 0	Pelargoniums, per 12 trusses	1 0	1 6
Camellias .. ..	12 blooms	2 0 5 0	„ scarlet, 12 trusses	0 9	1 0
Carnations .. ..	12 blooms	1 0 3 0	Poinsettia .. ..	12 b'ooms	0 0 0 0
Chrysanthemums 12 blooms	2 0 4 0		Roses (ladoor), per dozen	3 0 9 0	
„ 12 bunches	9 0 18 0		„ Tea, French ..	dozen	1 0 2 0
Cyclamen .. ..	doz. blooms	0 4 0 9	„ red, French ..	dozen	2 0 4 0
Epiphyllum .. ..	doz. blooms	0 6 0 9	Spirea .. .. .	12 sprays	1 0 0 0
Eucharis .. .. .	per dozen	4 0 6 0	Tropeolum .. ..	12 bunches	2 0 3 0
Gardenias .. ..	12 blooms	6 0 18 0	Tuberose .. .. .	12 blooms	1 6 8 0
Hellebore .. ..	doz. blooms	0 6 1 0	Tulips .. .. .	dozen blooms	0 9 1 0
Hyacinths, Roman, 12 sprays	1 0 1 6		Violets .. .. .	12 bunches	1 0 1 6
Lapageria, white, 12 blooms	0 0 0 0		„ Czar, Fr., ..	bunch	1 6 2 0
Lapageria, red .. ..	12 blooms	1 0 2 0	„ Parme, French, per		
Lilium longiflorum, 12 blms.	0 0 0 0		bunch .. .. .	4 0 6 0	



### PROFITABLE FARMING.

In the first paper of this series mention was made of the fact that Sussex was coming to the front as a leading agricultural county, but among other reasons for this statement no mention was made of perhaps the most important of all—the Sussex Association for the Improvement of Agriculture, which, under the energetic leading of Major Sergison and the safe guidance of Professor Jamieson, has already done so much good work for the farmer by showing him clearly, not without much opposition, how to turn his land to best



account, and how it is possible to render it infinitely more fertile than it is under ordinary culture. The importance of the work of this Society can hardly be overrated. So remarkable are the results of the work done at the experimental stations that the process of cultivation, or rather the application of chemistry to practical agriculture which has been carried out, has been regarded as an entirely novel process. Yet Professor Jamieson has repeatedly assured all who would listen to him that he had no great discovery to explain, no new kind of manure to offer, hardly an improved process of cultivation, but simply the application of common sense to chemistry. The work of the Association is to find out what is wanting in the soil, to see how that want may be supplied economically, and to do it.

The writer has followed the working of the Association from the outset with keen interest, and has applied the lessons taught by it to practice with such success that he is convinced that not only have farmers generally much to learn, but that every county association of agriculturists must eventually seek for improvement in the same sensible manner. To the ordinary farmer agricultural chemistry is still a mystery. He has almost always been accustomed to use farmyard manure to impart fertility to the soil. Sheep-folding is a step in advance to which he is certainly also accustomed, but artificial manure has only been used by him as a mysterious mixture, and his conception of its composition and real value has been vague and undefined. It is doubtless owing to this ignorance that dealers in manures have thriven apace; yet one is really constrained to wonder how they can have possibly been suffered to gull the British farmer so long. When Professor Jamieson first published his formulæ of manure mixtures for farm crops we were told by dealers in special manures that the mixture for corn would, from its excessive quantity of nitrogen, induce such a free growth of straw that we should get very little grain, and the crops would inevitably go down before harvest. The result certainly did show an increase in the bulk of straw by from a third to a half, but it also showed a proportionate improvement both in the quantity and quality of grain. In the last report published about a month ago we are told of a crop of Wheat of 6 quarters per acre; of another of 8½ quarters per acre; of an extra amount of profit per £2 12s. upon an outlay of £1 10s. 6d. for genuine artificial manure. It was calculated that an increase of £4 per acre above ordinary profits was possible, as actual results showed clearly. Speaking generally, the results show that sulphur and magnesia are in all probability not required by plants, or that the quantities required are so infinitesimal as not to demand attention in practice. That lime is required, that potash is essential, and that phosphorus and nitrogen are not only essential, but seem to regulate the produce in a very marked degree.

But in order that the crops may derive full benefit from the application of genuine home-mixed manures the soil must be relieved of superfluous water by drainage. Next we require mechanical division. Such we find in perfection in what is known as good mixed soil, containing a liberal proportion of small stones; next thorough cultivation and freedom from couch grass and other foul perennial weeds, and then with an intelligent application of manures and timely sowing and reaping we may attain to the best possible results, and depend upon it they will be much superior to those following ordinary practice.

The writer has carefully used the manures recommended by Professor Jamieson for pastures, roots, and corn, and in every instance with excellent results. Perhaps the most remarkable of such results was the annual improvement of the pastures laid in for hay. Year by year did the bulk of the hay increase, and there can be no question that the benefit arising from the use of artificial manure is not a thing of a season. But then there must be a regular annual use of the manure, only a smaller quantity becomes necessary after the first two or three seasons. We have before now

told how we brought a seven-acre meadow from a state of comparative barrenness to one of high fertility by the use of pure artificial manures only. We can also point to arable land where we have grown three corn crops in consecutive years, each crop being better than the one taken before it. In a word, we have learnt how to dispense altogether with the most costly of all manures—that made in the farmyard; to use better, cheaper, and more powerful manures, and to obtain better crops under the teaching of the Sussex Association for the Improvement of Agriculture.

#### WORK ON THE HOME FARM.

Artificial manure is now being sown on the grass land, and we shall have no more sheep or cows upon the pastures laid in for hay till after the haying. To have a full crop of hay the grass must be thus reserved and grazing cease, otherwise the haymaking is retarded and the quantity reduced. See that fallen branches and all stones be picked off grass land before the bnsh or chain harrows and rollers are passed over it. We have met with incredible carelessness in so simple a matter as stone-picking, and seen the mowing machine broken and work brought to a standstill through what was plainly culpable negligence. Rye sown in autumn for the breeding flock will now have a hundredweight of nitrate of soda per acre, both to quicken and invigorate growth. We have a large breadth of Winter Tares, but fear we shall run short of green food, as we have not got a piece of Rye Grass to follow the Rye. Circumstances beyond our control prevented our having the Rye Grass, but we are nevertheless fully aware how much we shall feel the loss of it, and due care will be taken to set this matter right for another season. To follow the Winter Tares a piece of Spring Tares will be sown after White Turnips and Swedes as soon as possible, and successional crops of Spring Tares will be sown onwards till May or June. Never did we find Spring Turnips more useful both for cows and sheep than during the drought of last summer. We hope to have some forward batches of fat lambs, and like to finish some of them folded on Tares with trough feeding. On the whole the lamb crop is a good one, and we have a rather large proportion of twins. There is a considerable difference in size among them, but then that is not unfrequently the case among cross-bred sheep, and our cross is between blackfaced Suffolk ewes and pure Hampshire Down tups. The ploughs are in full swing, and the sowing of spring Beans and Peas is being done. Barley will follow, and then Oats. We shall sow a good white Oat upon our best land, and Black Tartarian Oats upon land that is being brought into good condition as fast as possible. A large stock of Oats and Oat straw is invaluable just now for all sorts of live stock, and a surplus supply of good Oats always obtains a ready sale. Inferior samples of Oats are by far too common in market. There is no difficulty just now in obtaining 23s. to 24s. per quarter for first-class Oats, and that is certainly a profitable rate for a good crop, apart from the value of the straw both for sheep and bullocks.

SUTTON' FARMER'S YEAR BOOK.—We have received a copy of this work, which has been recently issued from the press. Amongst its leading features are a calendar of farming operations for the year; illustrations, botanical descriptions, and uses for which they are most suitable, of the leading kinds of natural Grasses; an article entitled "The Grass Seed Industry," with illustrations, giving some details of the sources of supply, the selection, testing, detection or adulteration and other interesting particulars in reference to the various Grasses used in agriculture; also instructions in the cultivation of the several kinds of agricultural roots. It is worthy of the perusal of home farmers and agriculturists, to whom it is sent post free on application.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
	Barome- ter at 32 <sup>a</sup> and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min	In sun.	On grass.	
1886. February.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sunday ..... 14	29.89	40.7	38.4	S.	34.0	42.2	38.6	48.2	32.8	0.057
Monday ..... 15	30.030	36.7	35.6	N.E.	35.0	40.1	33.3	44.4	28.8	0.047
Tuesday ..... 16	29.979	33.4	32.7	E.	35.6	39.9	33.0	41.4	29.7	—
Wednesday ..... 17	29.973	32.8	32.6	N.E.	35.4	36.4	32.3	40.2	32.2	—
Thursday ..... 18	30.148	34.4	33.8	N.E.	35.4	38.3	32.4	44.8	32.0	—
Friday ..... 19	30.119	32.2	31.3	N.E.	35.7	36.7	31.9	38.2	31.5	0.010
Saturday .... 20	30.188	32.7	31.9	N.E.	35.5	36.6	31.2	46.2	31.3	—
	30.035	34.7	33.8		35.2	38.6	33.2	43.3	31.2	0.114

#### REMARKS.

14th.—Dull morning, with showers; wet afternoon, fair night.  
 15th.—Dull damp day, with shower at noon.  
 16th.—Dull and cloudy.  
 17th.—Dull and damp.  
 18th.—Cloudy all day.  
 19th.—Cloudy all day, misty rain at midnight.  
 20th.—Cold and cloudy.

A very cloudy week, in fact almost constantly overcast, and consequently remarkably uniform temperature—the entire range for the week being only 11°. Temperature below the average, but much less cold than in the previous week.—G. J. SYMONS.





## COMING EVENTS

4	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
5	F	
6	S	
7	SUN	QUINQUAGESIMA.
8	M	Royal Geographical Society at 8.30 P.M.
9	TU	Royal Horticultural Society—Floral and Fruit Committees at 11 A.M.
10	W	Society of Arts at 8 P.M.

### CROTONS FOR DECORATION.

**T**HE groups of miscellaneous plants arranged for effect at exhibitions have probably assisted in causing the adoption of a more natural system of culture for Crotons. It was a common practice a few years ago to pinch the plants, irrespective of habit and variety, when a few inches high, to induce the formation of branches at the base, and lay the foundation of future bushes or pyramids. This practice is still prevalent, and in a very short time the plants subjected to such treatment become too large and are useless for most ornamental purposes. Certainly, when required for exhibition and association with large Palms, Ferns, and trained specimen flowering plants, well grown highly coloured plants are very beautiful; but the variety should be fully considered, or many will not display their true character to the best advantage.

It is not, however, my intention to write about these specimen plants, for there are hundreds of gardens in which they are of no service, and where it is only a waste of space and labour to grow them. When needed only for furnishing the house in which they are grown large bushes or pyramids cannot be arranged with other plants so effectively as smaller plants grown upright without topping.

Few plants, when their beautiful foliage is well developed and highly coloured, are more telling amongst other foliage and flowering plants than Crotons. For the dinner table or single vases scarcely any surpass them, for they are equally effective by gas and daylight. Some varieties, for instance the beautiful deep crimson Baron James de Rothschild, Newmannii, and others are brought out vividly by artificial light. Few plants last so long in good condition for such positions as Crotons. Certainly some are better than others, for the foliage, even in rooms where gas is used, clings to the stems for a long time—in fact, it will become dried upon them before it falls.

To have Crotons in good form for decoration the whole year round in various sized pots, cuttings should be rooted every month from now until the end of September. For finely developed plants to stand singly either in vases or for elevating above surrounding plants in groups, good heads must be rooted with large well-coloured foliage at the base. It is often impossible to get as many of these heads as are required, therefore side shoots produced after the head has been removed may be rooted and grown until they have developed bold foliage. For winter and spring decoration in 5 and 6-inch pots these will be handsome specimens 1 foot to 18 inches high.

Crotons do not root so freely now as during the growing season, for then any number of large heads may be rooted without losing a leaf. When large heads have to be taken off they can always be left until the plants are starting, and then cut them as near the top as possible to secure good foliage. Those who cut into the firm hard wood and think of rooting the head without losing the lower foliage, even

in the best appointed propagating frame, will be mistaken. The firm wood is twice as long rooting as that of a softer nature, and the lower leaves are certain to fade before the head is rooted, but when taken off where the wood is soft every leaf will be retained. Many fine heads are spoiled by carelessness in this matter at this as well as at other seasons of the year. Heads root freely enough at all seasons of the year if taken off where the wood is moderately soft and inserted singly in pots. Good sized heads are placed in 5 and 6-inch pots, and few in less than 3 inch, without they are required in very small pots for special purposes. In this case highly coloured side shoots are employed and rooted in 2-inch pots, and after they have been hardened are ready for the form of decoration for which they are required. The pots for cuttings should be drained and then filled with a compost of loam, one-seventh of decayed manure, and about one 7-inch potful of soot to each barrowful of soil, to this a little coarse sand may be added. Place a little sand in the centre of the pot for the base of the cutting to rest upon. Water and plunge them in the propagating frame or under handglasses, and keep them close until rooted. By plunging the pots and covering the surface of the soil with cocoa-nut fibre refuse or other material, evaporation is arrested and no more water is needed until roots are formed. Shade is necessary until the cuttings are rooted and able to withstand full light and sunshine afterwards.

To maintain a good number of highly decorative plants the whole year it is important to root a quantity of various sizes during August and September. These, if kept in a light sunny position in autumn, and wintered in a temperature of 60°, will continue highly coloured. These may be repotted at once, using the compost advised above, into 5, 6, 7, and 8-inch pots, according to their size and the variety of the plants. For such as *C. Chelsoni*, *C. interruptus aureus*, *C. Aigburthensis*, *C. Rodeckianus*, and others do not require such large pots as *C. Aneitense*, *C. Baron James de Rothschild*, *C. Johannis*, *C. Hanburyanus*, *C. Queen Victoria*, and *Prince of Wales*. After potting plunge the pots in sawdust, cocoa-nut fibre refuse, or any similar material. If this is kept moist and the plants liberally syringed they will fill their pots with roots before water need be applied to them. Syringe liberally twice or three times daily during bright weather when the season has somewhat advanced, twice being sufficient for the present. The plants can be well grown without plunging, but evaporation from the soil is greater, and the labour of watering considerable during bright weather, for they must never be allowed to suffer in any stage. I have never found it good for plants to be constantly pouring water into their pots to keep the soil moist about their roots. They are subjected to two extremes during every twelve hours of bright sunshine, for they are either dry or wet, but when the pots are plunged and the plunging material kept moist they only need occasional applications to keep the soil moist. These plants may be potted from time to time if larger specimens are required, but the size named is large enough for finely developed specimens, nearly all forms of decoration. These plants will by midsummer be in splendid condition for any purpose. Heads and cuttings rooted now will succeed them, and quantities should be rooted during the months of June and July, so that they can be had in suitable condition by autumn.

To grow highly coloured symmetrical specimens give the plants plenty of room, for if crowded they cannot be expected to be shapely. Employ no shade, but expose them to full light and sunshine and not too far from the glass. It is also important to keep them in a close moist atmosphere, when they will grow rapidly and colour their foliage as developed. While the plants are growing very little air is admitted, in fact the ventilators are never opened from October until the weather is sufficiently genial in spring to admit a small quantity of air without lowering the temperature or chilling the plants. Very little ventilation is given during the whole of



the summer, in fact none except when the days are very bright and hot. Under this treatment there is no fear of the plants burning provided they are allowed sufficient water at their roots, the atmosphere is kept moist, and they are freely syringed. When these conditions are observed rapid growth is the result, and insects such as thrips and spider will not trouble the plants.

At any time from the present until October, when the plants have developed large highly coloured foliage and further growth is not desired, the plants may be gradually hardened to cooler treatment. This will prevent further growth, and keep them for a long time in the best condition for decoration. Before plants are employed in rooms or for exhibition harden them carefully on these principles, or their foliage will flag and perhaps not recover in cool quarters. All plants intended for the winter ought to have their growth completed and be highly coloured by the end of September, for growth made after then cannot be well coloured. When the pots are full of roots feeding may be practised, supplying either clear soot water or artificial manure to the surface of the soil.

The varieties of Crotons are now very numerous, and the majority are ornamental when full grown. The following are useful sorts, in addition to those already enumerated:—*angustifolius*, *Disraeli*, *Lord Derby*, *Evansianus*, *Hawkeri*, *majesticus*, *Mortii*, *Princess of Wales* when well coloured, *Sinitzinianus*, *variegatus*, *picturatus*, *Warreni*, and *Wiesmanni*. Crotons that it is desired to push into growth as quickly as possible should be placed in a night temperature of 65° to 70° after they are potted.—DECORATOR.

#### NOTES ON PEAS.

MUCH has been written in these pages of late respecting this very important vegetable crop. The cultural notes by Mr. H. Marriott will have been read by many with much interest, as it is well known that he is one of the most successful Pea exhibitors in the country. One year, however, I had the satisfaction of surpassing his best collections at South Kensington. I have not had time to grow for exhibition since; but I still cultivate large quantities for the kitchen, and so long as I receive the "well done" of my employer the showing is a secondary consideration. Mr. Marriott is, if I may use the expression, a Pea man. He has himself to please, nobody else, and Peas are his hobby. If this does not account for his prizetaking it will, I think, for the time and expense he devotes to their culture. The treatment they receive from their youth upwards in watering, clipping, thinning, shading, &c., must indicate to many hard-working gardeners how hopeless is their chance of winning any Pea prizes if all this is necessary.

In my opinion prize Peas may be produced with less attention than many think. I have never at any time sacrificed the kitchen supply to win a prize or compete at any show; but if abundance can be had for the kitchen and a few for exhibition from the same row everyone is satisfied. Our plan has always been to sow in rich soil and produce strong plants of a prolific and lasting character, and only a stem here and there was treated for show purposes. This was any one which appeared extra strong or had formed extra large pods; then some small ones on the same stem might be cut and the point taken out of the main leader. This had the effect of making the pods remaining swell to their fullest extent and become excellent for showing. The summer before last I exhibited a few dishes very successfully, and they were gathered from rows which supplied the kitchen at the time, and from which we saved many quarts of seed afterwards.

Peas will always pay handsomely for liberal cultivation, such as deep digging and copious manuring; and when this is done at the first good pods will be produced in spite of everything. I do not object to Mr. Marriott growing his Peas in the way he thinks best, but what I like to see and encourage is a competition of produce representing the general merits of varieties. Good Peas or show pods will never be produced in poor soil, and this should never be forgotten when sowing is going on. Last year we had some exceptionally dry weather in July and August, and it was a most difficult matter to keep the Peas fresh and green, and the conclusion we came to was that midsummer Peas as a rule are sown too near the surface. Watering and mulching are partial remedies for this; but when the soil becomes hot and quite dry for several inches down it is difficult to save the roots from its injurious influence if they are only 2 or 3 inches from the surface. The trench system of growing Peas is one

which cannot be overpraised, but many seem to forget that Peas sown in March are those which will be liable to suffer from drought and heat in June and July, and the sowing in trenches is often not begun until it is too late. I am in favour of throwing the trenches out 1 foot in depth, placing 3 inches of good manure at the bottom, 2 inches of soil over this, sow the seed, and cover with 2 inches of soil. The roots will soon find their way into the manure, and when the hot weather comes they will be 1 foot below the surface; and in earthing up or mulching it is an easy matter to fill the trench level with the surface of the soil. All Peas sown after the beginning of March should be treated in this way. Late crops are also benefited by it, as, although there may be plenty of moisture when they are in pod in late September and October, it is the drought of July and August which is apt to check the growth of the plants and reduce their cropping qualities further on. Let it be understood, however, that it is only from March that I recommend trenches in a general way. We have had several rows of Peas, more particularly the wrinkled sorts, fail altogether by being sown in trenches in January and February, and in wet localities or cold stiff soils early sowing in trenches should be avoided.

Wrinkled Peas are assuredly the most tender, and the instance of sowing Wordsley Wonder the first week in January to secure pods for exhibiting on the 14th of July, as cited by Mr. Marriott (page 134) indicates how wrong it is to have a Pea buried in the soil for two months at least that are decidedly against its advancement. In the summer of 1884 I won a prize with Wordsley Wonder at South Kensington in July, and the seed was not sown until the 14th of March—ten weeks at least later than Mr. Marriott's. It is a rule, almost without an exception, that during the growing season, which extends from the beginning of March onwards, all Peas will be ready for gathering in sixteen weeks at most after sowing, and I would guarantee to sow any kind of Pea on the 14th March and exhibit it in prime condition on the 14th of July. In all my experience of Wordsley Wonder I have never dreamed that it took upwards of seven months to gain maturity, and I am sure this is not its general character.—A KITCHEN GARDENER.

#### CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 127.)

##### TRAINING PLANTS FOR PRODUCING LARGE BLOOMS.

VARIOUS are the methods of training Chrysanthemums for the production of large blooms. In referring to the different systems practised, my remarks will be strictly confined to those plants which are grown specially for supplying large blooms either for exhibition or home decoration, not to trained specimen plants. Some growers top the plants when 4 inches high, the point of the shoot being pinched out. This induces the production of two shoots, which are tied to a stake and allowed to extend till the first natural "break," and from this break two other shoots are carried up. Some persons consider this topping induces a dwarfer habit, but that does not always follow, as I have seen plants grow quite as tall when treated in this manner as when grown under other systems. Other cultivators top the plants when 8 inches high; three branches are produced after this topping and trained to separate stakes, all axillary growths being removed as fast as they appear. Flowers produced by this method are generally large, but owing to the wood not being thoroughly ripened, consequent on the late topping, and the growths being behind their natural stage, are not of first-rate quality, lacking depth and solidity. In order to reduce the height of their plants some growers in the early stages starve them by withholding water—giving much less than they properly require, and also by allowing them to become root-bound previous to shifting into larger pots. Flowers produced by such plants are rarely of the first order of merit, having the defects mentioned in the previous case. A plant rendered constitutionally weak by starvation cannot produce perfect flowers.

Many plants are grown with one stem only, not topping them at all, but allowing them to attain the customary height of each variety. All other conditions being favourable good flowers are produced by such plants, but I consider the practice wasteful, as one plant will produce more flowers of equally good quality. It moreover often happens that the points of the shoots are broken by winds, rain, and frequently by birds alighting on the points. When such accidents befall single-stemmed plants, they may be, and often are, spoiled, the time and attention bestowed being then wasted. I must make an exception in the matter of topping in favour of *Eve* and its sport *Mabel Ward*, which is the exact counterpart of its parent in growth. Good examples of these are seldom seen. The best way to insure good flowers is to grow the plants with one stem till the middle of May, then top them, select three of the best shoots resulting, from these three branches rub off all



side shoots as fast as they appear, and "take" the first buds produced, which are early "crowns." As a general system it is best to allow varieties to assume their natural habits, the growth is then solidified, and all the wants of the plants met at the proper time. The plants are not topped at all, but allowed a free uninterrupted growth until the first natural break, which sometimes occurs about the middle of May or early in June, according to the time cuttings were struck early or late. Some varieties are earlier in their first stages of growth than others, and some, notably Madame C. Audiguier, grow 4 feet high before they break, while some others do not grow more than 1 or 2 feet high before the first bloom bud is formed. No absolute rule can be laid down as to the time of the first natural break; when it does occur the bloom bud must be rubbed out, and three of the strongest shoots selected. These must be securely tied to a stake as they grow, and as fast as side branches are produced they must be taken off, retaining only the three shoots selected at the first break. At the point of each branch flower buds will form in due time, commencing early in August and continuing throughout September. Until the buds are selected which are to produce the best flowers all other buds and branches must be taken off as soon as this can be done without damaging the stems or points of the main shoots, thus concentrating all the energies of the plant to the three stems as selected at the first break.

#### STANDARDS.

Chrysanthemums grown as standards are useful for the decoration of the conservatory when placed in suitable positions on the floor. They are not so frequently grown in this form as in others, owing to the time and attention they require, and also because many do not approve of such close training as is required to produce the specimens. The varieties specially adapted for growing in this form are not numerous, the incurved section being most suitable, and I give the names of some of the best. For the production of good standards the strongest cuttings should be selected early in December, and struck in the manner that has been previously recommended. In all stages great care should be taken that they do not become drawn up weakly. As soon as the plants are well rooted, shift them into larger pots and place them in cold pits or frames. When all fear of frost is past—which in the south of England is usually about the second week in May, and in the north towards the end of the same month—care should be taken to place them in such a position out of doors that a light covering can be thrown over them should frost occur, which would otherwise seriously cripple the points of the shoots.

About the 1st of June they will require their final shift into 11-inch pots, using the same kind of soil as before advised. The position selected for their summer quarters should be thoroughly exposed to the sun and air, but sheltered from east and south-westerly winds. Plunge the pots about half their depth in ashes, which keeps them firm and the roots cool during a hot summer. Exercise great care to prevent their being blown about in windy weather, as the roots are easily damaged by the continual rocking backwards and forwards of the plants. Three stakes firmly driven into the ground in triangular fashion, and connected to the stake in the pot, is a good system. Only retain one stem, and when this reaches the desired height—3 feet, or 3 feet 6 inches—it should be topped. If the plants grow to this height before making their natural first break, so much the better; but if a break occurs earlier the shoots must be reduced to one, which is allowed to grow till the necessary height is reached. The topping induces other side shoots to form, which make the foundation of the future head. Reduce these shoots to four, and when these have grown 6 inches long again top them, continuing this process till the requisite number of branches is obtained to cover the trellis; but topping should not take place later than the middle of June. The number of flowers each plant is expected to produce must guide the cultivator as to the number of times the shoots should be topped; it is a mistake to attempt to produce too many blooms on one plant. It is far better to limit the number, and have them of better quality. Plants of the small varieties of incurved kinds, such as Mrs. G. Rundle if the heads are grown, say, about 2 feet in diameter and about 1 foot 4 inches in depth, fifty blooms will be enough; but in the case of White Venus thirty flowers on heads the same size would be ample. Of course, the plants can be grown much larger, but it should be remembered that the greater number of flowers the smaller they will be.

The shape the plants are to assume must be determined, and the sizes I have given answer very well if the form is convex. Bend pieces of strong galvanised wire of the length named over, fastening each to a circular ring as the foundation, and securing all to the top of the centre stake. Fix the framework from the bottom wire to the centre stake with the aid of two pieces of stout wire stretched across from one side to the other, as this prevents

the head swaying about. Commence training the branches as soon as they are long enough, as the foundation is more easily formed at this stage than when the shoots are longer and harder. When the bloom buds are formed, which will be early in September, disbud to one on each branch, and when they are swelling give the plants their final tying, as the shoots which are bent have plenty of time to right themselves; in this way severe training is not so easily detected as it is if done a few days before the plants are in bloom. Supply them freely with water at the roots during summer and at all times, and in the evenings of fine days freely syringe the foliage. As feeding the plants will be specially dealt



Fig. 28.—Standard Pompon Chrysanthemum.

with later on, it will not be necessary to dwell upon that point now. House the plants, and treat them the same as those grown for other purposes.

The varieties I have found best for the purpose are the following:—Mrs. G. Rundle, Mrs. Dixon, George Glenny, Aureum Multiflorum, Julia Lagravère, Venus, White Venus, Mrs. Halibarton, Prince of Wales, Dr. Sharpe.

Several varieties may be represented on one head if required, by grafting. Skilfully trained examples are occasionally seen in which blooms of the varieties are shown in concentric circles—the lower tier, say, Mrs. Rundle, the next Prince of Wales, then Mrs. Dixon, Venus, and George Glenny, with a central terminal flower of say



Princess of Wales. Some of the best specimens of this nature have been exhibited at Walton-on-Thames, and the method of grafting has been described as follows by Mr. G. Masters:—

"If plants are wanted with stems  $2\frac{1}{2}$  feet high, growth should be encouraged until the plants are 3 feet in height, then pinch out the tops; leave about six eyes at the top to form the head, removing the others. When the top shoots have grown about 6 inches cut them off 2 or 3 inches from the stem; then take cuttings (scions), cutting the ends in the form of wedges, and insert them in the severed shoots of the prepared plant, securing them with wool or bass. Keep the plants in a cool house, and sprinkle and shade them until the union is effected, when they may be removed to the open air. Grafting may be done as soon as the plants are ready, which ought to be by the middle of May, so that the grafts can be stopped two or three times and thus form a fine head. It is important that the plants are in a healthy ree-growing state when they are grafted, and that the work be done quickly yet carefully. Care should be taken to graft varieties that flower as nearly as possible at the same time. Every shoot may be grafted with a different variety if desirable."

Pompons are well adapted for standards, and are excellent for both exhibition and home decoration. The method of training is often too formal to be agreeable, the growths being closely tied down, showing the bending and lacing of the stems, which should never be visible. Mr. J. Lyne of Wimbledon has made a welcome departure from the lacing system. The method he adopts in forming the heads is to continue pinching the shoots as soon as two leaves are formed till the 31st of July, then let them grow as they will. The result is seen in the annexed engraving (from a photograph), the plant represented being grown from a cutting inserted early in March; but as a rule Mr. Lyne recommends their being inserted in December. The varieties found suitable for this purpose are Rosinante, Dick Turpin; White, Golden and Lilac Cedo Nulli, St. Thais, James Forsyth, Madame Marthe, Golden Madame Marthe, Sanguineum, Souvenir de Jersey, Bijou d'Horticulture, and Lili-putian.—E. MOLYNEUX.

(To be continued.)

#### FISH POTASH MANURE.

HAVING used this manure rather extensively during the past season. I have great pleasure in endorsing "J. G.'s" remarks on it (see page 134). Unlike "J. G.," however, my applications of it have been exclusively confined to pot culture, such as Vines, Pines, Figs, Melons, Tomatoes, Peaches, &c., and with highly satisfactory results, especially Vines and Peaches. The former carried and finished splendidly from six to eight bunches each, and was much admired by all who saw them. The Peach trees not only finished excellent crops, but carried their foliage healthy till late in the season. It was also noticed during stoning time not a single fruit fell. I may add, all our Peaches and Grapes under pot culture are finished by the first week in July, beginning as early in May as we can get them. I find our first Peaches were gathered on May 8th last season. So we have to start when the weather is anything but favourable.

To our permanent Vine borders we add manure annually, when we do so again we will bear in mind Mr. J. Gibson's remarks and use a little fish potash. To those who are about to try this manure for the first time, I would remind them a little goes a long way. For pot Vines we find about a pint to a 12-inch pot is ample without the addition of any other manure whatever. We have so treated a lot of cut-backs, which in due time are to come in for early work. In our trials of this manure before its general application we killed by an overdose several plants, others of the same kind being greatly benefited by a lesser quantity.—T. W. B., *Elstead*.

RENOVATING VINES.—"J. G." (page 134) gives his experience of the value of Norwegian fish manure for Vines and other plants. I can fully endorse all that he advances in its favour for Grape-growing, having seen Vines such as "J. G." describes restored to the rudest health in a remarkably short space of time, but it must be admitted that several other important matters, such as careful ventilation and watering, were strictly attended to, otherwise fish or any other artificial or natural manure would not have worked out such an improved state of health. I have used a good quantity of this manure in the vegetable garden at all seasons of the year, but its effects are not so distinctly seen during the summer as in the spring and autumn months, as at that season the ground appears to be often too dry to bring out its qualities sufficient for the use of plant life.

Last season some late Queen Broccolis were planted on firm ground and watered daily, but the drought was so severe that these plants could make no headway against it, and seemed to become smaller rather than grow. We were almost disposed to pull them up in despair, when the fish manure suggested itself, and we resolved to give them a trial. A quantity was mixed with some ashes strewn thickly over the ground, and slightly dug in so as to place it more within reach of the roots of the plants, and also to break the surface to allow a freer circulation of air and water. The results of this experiment are that we shall have a good number of heads to cut when other Broccolis are becoming scarce. Where small patches of ground only have to be dressed it is necessary to mix the manure, owing to its dry and dusty nature, with some damp material,

such as fine soil or wood ashes, otherwise a large per-centage will be carried away by the wind.

For potting purposes it is useful, Tomatoes and Strawberries especially being very partial to it, the roots being quickly attracted to the surface of the soil when an occasional sprinkling is given. We are about to use a quantity for dressing a large tennis lawn which is in want of some stimulating material, and I believe it will have the desired effect.—S. B., *Newbury*.

#### THE CYCLAMEN.

THIS plant has now become most deservedly popular, and I am of opinion that of late years among flowers very few have been more improved by hybridising and selection. If a packet of seed is purchased from a reliable source it is safe to say that 80 per cent. of the plants will produce flowers quite up to the standard for ordinary decorative purposes, so that if a few plants are raised at different times and a selection made of the best a beautiful and choice collection can be obtained.

Now is a good time to purchase and sow the seeds in order to have the plants in flower next year at this time. Twelve months ago I sowed a packet of seeds, and the bulk of the plants are now in bloom, and are giving great satisfaction. I sowed the seeds in a pan of well-drained sandy loam, covering them to about twice their thickness, press the soil down firmly, cover them with a layer of moss, water well, and place them in a Cucumber house or frame. The seeds are some time in germinating. This arises from two causes; in the first place the seeds are hard, and when they begin to germinate a small corm is formed, from which the leaves spring, and rooting commences at once. As soon as the little plants are large enough to handle they should be pricked off an inch apart into pans or pots, using sandy loam as before. Gently water and shade them for a few days if necessary, but do not keep them in too hot a temperature; about 60° is sufficient. They will grow slowly, but in time will throw up three or four other leaves, according to the swelling of the corm. When these have grown sufficiently each one must be taken up carefully and put singly into thumb pots, drained properly with finely broken drainage, using this time one-third sifted leaf soil to the two of loam and sand. Pot only moderately firm, for the roots are yet very tender and but just cover the corm. When they become established there move them to a shelf near the glass in ainery at work, as the temperature of the Cucumber house will be too high, and induce the leaves to run up at the expense of the corm, and cause them to become stunted.

As soon as they are well rooted they will need a shift into large 60's, using soil mixed as before, but only just cover the corm. Examine them often in the matter of watering, for they will not thrive if over-watered. They will soon be rooting well into the new soil and the corms increasing in size, although the foliage will not show much sign of that. The usual ventilation given to the Vines will suit for the present. Look out for green fly at this stage, which attacks the under surface of the leaves, and apply the usual remedy. Red spider is an enemy they are subject to, and daily syringing will be necessary. When the plants have rooted fairly from the last shift put them into 48-size pots, and some of the best will need small 32's. The soil now must be different, as it will not be necessary to pot them again before flowering. I have found the following proportions to answer well:—3 pecks of turfy loam partly decayed, with silver sand added according to its condition, 1 gallon of dried cow manure sifted through a sieve of quarter-inch mesh, and 1 gallon of charcoal dust. Mix it well with the hand. Pot them firmly this time, leaving just a sight of the corm above the soil. Water well and return them to the same place. After they become established here the time of year will have arrived when they can be plunged in coal ashes in a frame not more than a foot from the glass. Give them sufficient room so that the air can pass freely amongst them, and a little can be left on at night when the weather is warm; but at all times a good growing temperature must be kept up. They will be found to do well in this position until they are taken in the houses, which will be about September, and after this time they will appear to cease growing in the foliage, excepting that of getting larger and thicker; but in reality the corms are hastening to maturity and storing up material for flowering. Soon the minute flower buds will be seen at the crown of the corm, and at this time and through the winter water must be given sparingly but judiciously, for if too much is given the flower buds die, and if too little the flowers come small and sometimes deformed.

By the end of the following January, if all has gone well, most of the flower buds will be rising above the foliage and showing colour. This will be a good time to introduce a few into a little higher temperature if wanted early, otherwise they will gradually come into bloom and last a long time. Their handy size and bright colours with a neat compact growth renders them a most useful class of plants for various modes of decoration. In looking over my



plants to-day I find the number of flowers range from fifteen up to twenty-eight on a plant, which I consider a fair number for my purpose. I once divided a hundred plants into four equal lots, and tried an experiment with a different mixture of soil for each lot and carefully noted the results, but the most satisfactory were the plants grown in the compost stated above.—THOMAS RECORD.

#### NEW v. OLD VARIETIES.

I FOR one, and I doubt if there are not many, who do not agree with "A. L. G." (page 134) as to old varieties being altogether superior to new. There are undoubtedly many old varieties of vegetables that are very difficult to surpass; still, if all were of the same opinion as "A. L. G." gardening would certainly become very tame, as novelties are often the greatest interest of the garden and gardeners generally. I would not pretend to advocate an excess of novelty in the vegetable list, as it would prove a too expensive indulgence, but they may profitably be patronised in moderation with advantage to both gardener and employer alike. Brussels Sprouts are, says "A. L. G.," represented by Aigburth only. This is a variety pretty generally discarded, and better varieties are substituted that prove more profitable. Reading Exhibition or Gilbert's Universal are to my mind far before Aigburth. A new form of Beet was grown last year, and which gave such satisfaction at the table that the same has been ordered this year.

Broccoli is a vegetable that has been much improved of late years, and the same holds good respecting Celery, Tomatoes, Turnips, and Peas, the latter especially so. Chrysanthemums, too, have had many valuable additions of late years. This is indisputable, more especially in the Japanese and early-flowering section. With regard to Melons, these are most numerous, and oftentimes very perplexing, as so many forms are sometimes produced from one packet of seed. It would appear that tastes differ more with Melons than with almost any other kind of fruit, some preferring scarlet-fleshed kinds and others green. With us last year Eastnor Castle, among others, was grown, and is often justly considered excellent, but I am under orders not to grow it again. W. Tillery and Blenheim Orange are varieties if obtained true are difficult to surpass for productiveness and quality, and represent a good type of green and scarlet-fleshed kinds.—S. B.

YOUR correspondent, "A. L. G.," I fancy to a great extent misinterprets the true meaning of Mr. Molyneux's advice, for doubtless he is one of the very first to view and try any new variety.

"A. L. G." ought by all means to have named the whole of the vegetables he finds it most economical to grow; in that case readers might have been able to trace how many are grown that were not long ago novelties or new varieties. Among the few penned I notice three. It may be "A. L. G." does not grow those new varieties until they have been well tried, but a nervous policy in looking on until the ice becomes cut up by others is not to be admired. That there is annually a vast number of doubtful novelties in the pages of most catalogues cannot be denied, and that many firms sell the same strain under different names is pretty certain. If they are good not much harm is done by that. It is certainly in the interest of seedsmen to supply the most useful and productive varieties even in made-up collections. I very much admire the terms exhibition and profit, as employed by Mr. Marriott. It may safely be predicted what position a collection of vegetables would occupy provided some of the new and old novelties were left out.

I remember a remark penned by "A Thinker" in a paragraph some time ago, that employers are pretty much as gardeners make them, or something very similar to that. I thought at the time what a weight of truth the short sentence conveyed. I could name an employer who not very many years ago complained that £3 in Pea seed alone seemed rather extravagant, having usually run on the 1s. to 1s. 6d. per quart line to short of £1 10s. Regarding the next season, nothing was said except a wish to have a supply of Peas equal to the preceding; the seed account with a few sundries having reached £8. The same employer, a very economical and thoroughly business gentleman, asks what sum will be required for Peas this year. "Nearly five pounds, sir," was the reply. "Quite right, well spent money that." The seed bill scaling £14 is paid by return without a murmur. Will readers pardon my details? I hope they may be of service. May I ask "A. L. G." how this employer's interest could have been better studied. Still I would say to any other young gardener, Take especial pains at all times and in all things to meet the wishes of your employers; but this does not imply that narrowing down to the lowest point in everything is most economical. Often a little careful and unassuming explanation with steady progress is more satisfying than rigid economy with bare results.

While I find it needful to keep a garden in pleasurable and profitable order with the least possible outlay, give me high-class men well paid, high-class seeds, and abundance of high-class tools.—LATHYRUS.

#### HARDY PERENNIALS AND ROOT-PROPAGATION.

At the present time many persons are growing hardy perennials who seem little acquainted with the means by which they may be increased. One of the least-known methods perhaps is that of root-propagation. It has an advantage, too, as by root-propagation many good plants may be readily increased which are either slow to produce cuttings or do not flower sufficiently

early to produce seed. Another gain we find by root-propagation is that it is best done when the plants are in a dormant state, the best time being during the first three months of the year, though I have with such plants as the Japanese Anemones continued to insert quantities of rootlets till late in March. Some plants are so floriferous that it is almost impossible to obtain growth cuttings, in which case root cuttings are of still greater value. The genus *Gaillardia* affords an instance of this, as the plants continue producing flowers till cut down by autumn frosts. But some may urge that the *Gaillardias* are so free to produce seeds that these would more than compensate for the loss of growth cuttings; but supposing in a bed of *Gaillardias* we get some very fine forms, then root cuttings are of great value. In this way some years ago I secured a batch of a very fine *Gaillardia* which was at least 4 inches across, and which was considered entitled to the name afterwards adopted of *grandiflora maxima*.

The operation of root-propagation is not one of considerable difficulty, but on the other hand, may be performed by anyone having a fair knowledge of the plants themselves. The chief points to be observed are as follows:—The plant may be lifted and some of the larger roots detached, at the same time taking care to label them correctly, replant the specimen, but take care not to permanently injure the plants operated on, and it is best to cut the root its full length, which will give several cuttings. The next thing is to cut the roots into lengths of from 1 to 2 inches, laying them in one direction, so that they may not become reversed before placing them in the soil. Pots or pans may be used. I prefer pots well drained, and place the cuttings round the interior. When inserting the cuttings, leave the top visible above the soil—that is, for thick fleshy roots. Twiggy or fibrous roots I prefer scattering thickly in boxes or pans. Any ordinary soil will do, making it rather sandy; in this way continue till the work is completed. When this is done the pots should be removed into slight bottom heat. The boxes may be placed under the stages till signs of growth appear, and then place them where they may receive more light.

It now remains to enumerate those genera which can not only be propagated freely in this way, but which pay for the trouble. Taking them in alphabetical order, we first notice the *Acanthus*, which constitute one of the stateliest groups of fine-foliated perennials suited either for the rockwork in prominent positions, the specimen border, or for exhibition purposes. The whole of this group is easily increased in this way, and make saleable plants in less time than seedlings; the roots are large and fleshy and soon break into growth. The most distinct are *A. candelabrum*, *A. longifolius*, very handsome, and *A. spinosissimus*.

*Anchusa italica* forms a pyramid some 3 feet high and in diameter. This is also a free seeder. In some winters I have seen it killed, as far as the top is concerned; at such times I have had recourse to the roots, which dive deeply into the soil, and by lifting a few of these good flowering plants were secured for summer, and which, had the plant been left to itself, might have taken a full season to recover.

Amongst the most important of hardy plants which furnish gardens with flowers from very early spring till quite late in autumn are the *Anemones* or *Windflowers*, the majority of which are tuberous, therefore it is not to these that I now refer. Such species as *A. pulsatilla*, *A. alpina*, *A. sulphurea*, with all the forms of *A. japonica*, may be increased in this way; in the latter case it is decidedly the best mode, as every particle of root will grow.

*Doronicums*, *Echinops*, and *Eryngiums*, the former valuable for some of the early-flowering species which it contains, and the two latter equally valuable for picturesque planting on rockeries and the like, may be similarly treated. The *Gaillardias* are highly valuable free-flowering perennials, and which continue to produce flowers till frost comes. The roots of these are white, the older ones woody in the centre, and the latter do not break so readily as the younger and more fleshy. Then comes the fragrant *Jaborosa integrifolia*, a dwarf plant, preferring a sunny position; it is still uncommon and produces its large white tubular flowers from amidst abundant foliage.

In the *Oenotheras* we have some free seeders and others which can be propagated freely by cuttings and division; still it may be well to remember that *O. macrocarpa* and *O. missouriensis* may be freely increased by root cuttings. These two forms appear to be identical, at any rate what I have grown under the names. The showy *Poppies* of the Orient, *Papaver orientale bracteatum*, and allied forms, are not good to divide, for their roots run deeply and are very brittle, but by digging up the roots they may be had in plenty.

The next most important group is the *Primulas*, but considering their free-seeding qualities, and the ease with which seedlings of the species are obtained, I prefer to rely upon seeds,



the only one of which I always secure roots when opportunity offers being the old double crimson or Pompadour, *P. acaulis rubra* fl.-pl., a charming flower, but, alas! a short liver in England. It does better, however, in the northern than in the southern counties, though I have had it in fine condition close to London. I remember planting about 200 of this some years ago in the north which did splendidly, very much surpassing my most sanguine expectation. I planted them in a shallow frame somewhat below the ordinary level. They were, in fact, deluged by heavy rains, and evidently in perfect enjoyment of their temporary immersion; the soil was very rich, and contained about one-half well-decayed manure. I put some lights over them, indulged them to all warm showers, and very carefully protected them from both sun and frost. In the height of their growing season I watered them with liquid manure twice or thrice weekly. Here they grew amazingly and made grand tufts.

The finest of the *Senecios* is *S. pulcher*, which, contrary to its tribe, is a shy seeder, but which breaks uncommonly free from root cuttings; it deserves every encouragement, as it is among the best of autumn plants. *S. japonica*, syn. *Erythrochæte palmatifida*, is a very fine-foliage plant too seldom seen, and which in specimen form is unique.

The *Statice*s are all useful and good, in this case root cuttings make plants far more quickly than seeds, and it may be well to state that the more tender species, such as *S. Holfordi*, *S. profusa*, and others, do equally well. Then we pass to *Stokesia cyanea*, a plant which opens its flowers too late for outdoor culture in many parts; it well deserves greenhouse culture in these cases and can only be readily increased in that way. This completes the list of the most worthy; others there are, as *Symphytums*, but which are easily increased in other ways, beside which there are numbers, such as *Asters*, *Achilleas*, *Harpalum rigidum*, and many more which produce stoloniferous growths so abundantly as to need keeping in check. These I have avoided, deeming it sufficient in my present note to refer to those which for the most part do not exhibit any tendency to break unless assisted in this way. The plants may, when sufficiently strong, be potted and treated similarly to seedlings till well established and ready for placing out.

In my notes on page 74, second column, first paragraph, read "and is rarely detected save by the plants dying."—J. H. E.

#### THE ROYAL HORTICULTURAL SOCIETY'S PROVINCIAL SHOW.

I CONCLUDED from your leader on this subject that the "Royal" and Liverpool Association had agreed to work together to render the provincial exhibition a splendid success. I was sorry to learn to the contrary—that is, that the Association were going to hold their show as usual. This is confirmed by a letter from a friend who knows some of the Committee. I think this is to be regretted, for much local support, especially as far as the exhibits are concerned, will be centred in their own exhibition. I think it is a great pity for both that suitable arrangements could not have been made and the Association's show abandoned for one year, so that every chance would have been given the "Royal" to have proved a success. The Liverpool Association has done well since its commencement, but whether the Liverpool public are a flower-loving people remains in a measure to be proved. The very reverse seems to be the case, if I judge rightly, from the reports of the Association that have from time to time been sent to me. At most of the shows there appears to have been much less public patronage than would naturally be anticipated for a large city like Liverpool. The Association would have failed long since had it not been for the splendid subscription list they have obtained by the aid of honorary and ordinary members, and I hope that the subscription list will be increased and the Society's influence for good extended in a wider field than has been the case up to the present. I am, however, afraid that if the Association holds their show as usual in Sefton Park they will enjoy less of the public patronage this year than in the past. The Shippers will be the centre of attraction, and all that come from a distance—I mean horticulturists—will try to put in an appearance to see the Royal at the same time.

If the Liverpool Association has not announced publicly their intention to hold their show as usual, I hope that they will offer the "Royal" a sum to admit their subscribers, and render them all the help in their power to make the provincial society a thorough success in every way.—HORTICULTURIST.

#### RABBITS INJURING FRUIT TREES.

"W. A. K." will find that rabbits and hares will not eat the bark from trees if they are simply washed with limewash about 2 feet up the stems. We have here an orchard about three acres in extent in which rabbits are enclosed with wire netting, and previous to the severe weather lately experienced the rabbits commenced barking the stems very severely. I was rather put to my wits to know what best to do. I at last thought of limewash, and had them at once done, and since that no bark has been eaten from any of the trees although there is a large number of rabbits enclosed, and they could get but little besides a few

Cabbage leaves when the snow was 6 inches deep, but how permanent this may be I am at present unable to say, but I am of opinion that if done annually it will be all that is needed for the safety of the trees.—W. A. WALTER.



SEVERAL letters reach us just as we are going to press describing the extremely WINTERLY WEATHER that prevails in various districts. The snowstorm appears to be general, but the "fall" greater in some districts than others. Planting and land-working generally is in abeyance, and the intense cold of the opening days of March will not be soon forgotten. In the neighbourhood of London there was a considerable fall of snow on Monday; this, however, rapidly thawed, and had disappeared on Tuesday, when it was followed by sharp frost and another slight fall of snow on Wednesday, accompanied by keen winds.

—"JUVENIS" sends the following note:—"I have read several very interesting articles lately on 'HYBRIDISING SWEET BRIAR' and 'H. P. ROSES,' and can quite understand that it would be difficult to make use of any late-flowering autumnal Roses. Surely there are some early summer Roses worth the experiment. Have any of your readers ever tried to hybridise Sweet Briar and York-and-Lancaster Rose, or Sweet Briar or *Rosa rugosa*, or even the *Polyantha* Roses, with the desire of procuring scented foliage?"

—"THE OXFORD ROSE SOCIETY" will hold its thirty-fifth annual exhibition in New College Gardens, Oxford, on Thursday, July 8th. The schedule of prizes includes eleven classes "open to all England," and ten others limited to "Amateur Members of the Society." The money prizes range from "£7, for 48 triplets," to "5s. for one bloom." Exhibitors coming by railway have their boxes met and conveyed to and from the Show free of charge.

—"A. M." asks "If correspondents will oblige by giving the best SELECTION AND SUCCESSION OF PEAS, extending over as lengthened a period as possible, and continuing in unbroken succession till late in the autumn. This information will be very thankfully received. Mr. Marriott's plan seems more for exhibition purposes than for the supply of a family."

—"MESSRS. W. HEATT & SON" write:—"As we have received numerous inquiries in regard to the extent of damage suffered by us in the FIRE IN COVENT GARDEN MARKET on Saturday last, February 27th, we should feel obliged if you would find space to intimate to our many friends that the damage sustained by us was very slight and does not in any way interfere with the conduct of our business, which is being carried on as heretofore." The damage at this fire was confined to the shops at the east end of the Central Avenue, but several of these were completely gutted, and the roof was damaged for a considerable distance.

—"MR. BARDNEY" informs us they have had SHARP FROSTS there during the past week varying from 4° to 10°. "March 1st was the most winterly day experienced this season. The wind has been piercingly cold and drifted the snow that fell during the night. Early in the day the wind changed and snow commenced falling heavily from the east, and continues without signs of abatement. We have now more snow lying upon the ground than we have had all the winter. This has been a long, dreary, sunless winter in this locality, and one of the worst that I remember for conducting forcing operations. We never have much sun here in the winter, but we have had less this than for some years past."

—"A. M. B." writes as follows on the WEATHER IN MID-LINCOLNSHIRE:—"February closed in sullen and severe frosts; March enters with the same bleak, bitter aspect, and since about 8.30 A.M. snow has been falling, fine but continuous. Everything looks once more white and winterly in thick snow. The scent of snow has not been out of the air for many weeks. Apparently shrubs, Rose, and fruit trees have not suffered much as yet."

—"PRESENTATION TO MR. J. H. FORD."—On Thursday, February 26th, the Richmond Horticultural Society entertained their Honorary



Secretary, Mr. J. H. Ford, at a complimentary dinner in the Masonic Hall, when he was presented with a substantial testimonial in recognition of his services. This consisted of a handsome gold watch and a purse of 100 sovereigns, which had been subscribed by members of the Society and friends. The chair was taken by Sir J. Whittaker Ellis, Bart., and there was a large attendance of the leading horticulturists in the district. Several speeches were made, and Mr. Ford was highly complimented upon the satisfactory manner in which he has conducted the Society's affairs.

— THE NEW PARK AT EXETER.—We learn that Messrs. Lucombe, Pince & Co.'s tender for the supply of the ornamental trees and shrubs required for the Belmont Pleasure Grounds at Exeter has been accepted by the Exeter Town Council.

— "M. C. B." writes—"I have had some seeds from New Zealand of a plant called KOWHAI NGUTU KALIA. Can any of your correspondents tell me what is the correct botanical name, and what is the proper treatment? They are being raised in a hotbed. How shall I treat them?"

— THE gardeners and labourers employed in the ROYAL HORTICULTURAL SOCIETY'S GARDENS at Chiswick and South Kensington were entertained at a supper provided for the occasion at the Bolton Hotel, Chiswick, on Friday evening, the 26th ult. The chair was taken by Dr. Robert Hogg, who was supported on the right by Mr. A. F. Barron, and on the left by Dr. M. T. Masters. The vice-chair was filled by Mr. J. Shirley Hibberd, supported by Mr. Thomson and Mr. Summers. About thirty sat down to an excellent repast, which being over, the remainder of the evening was spent in songs and speeches, all present giving evidence of the pleasure they seemed to derive from this gathering. The occasion was prompted by some members of the various Committees who are accustomed to meet during the year at Chiswick to conduct experiments of various kinds and to report thereon. These gentlemen having received much useful assistance from the young gardeners and others employed in the Garden, and who made in many cases personal sacrifices that these experiments should not fail through want of attention, considered it a proper recognition of their assistance to invite them all to a supper. We hope that this will be but the beginning of a long series of such entertainments.

— REFERRING to MILDEW ON ROSES "Borderer" writes:—"Though I have had by me all last year the 'Gardeners' Year Book, 1885," yet it was only the other day that I read in it Mr. Worthington Smith's most interesting article on 'Rose Mildew,' but in which he unfortunately has to say that he cannot point out how it can be prevented. I was, when reading the article, reminded that I saw in a number of the *Journal of Horticulture* last year a statement that dressing the soil of a Rose bed with gypsum was a great preservative against, if not preventive, of mildew. Can any of your correspondents kindly inform me if this is generally found to be successful, and in what quantity the gypsum should be used?"

— THE NARCISSUS COMMITTEE OF THE ROYAL HORTICULTURAL SOCIETY will hold three meetings during the coming season—viz., on March 23rd, April 13th, and April 27th. The proceedings at each of these three meetings will be conducted as follows:—The Committee will meet in or near the conservatory at 11 A.M., when a list of the specimens sent in for examination, and of questions for discussion, will be presented. The Committee will first determine what specimens and questions it will take into consideration, and adjourn in order that members of the Committee may examine the specimens. At 1.30 P.M. the Committee will reassemble and proceed to the discussion of the specimens. It is hoped that those interested in the Narcissus will send up to one or other of these meetings any new or interesting forms they may possess. All such specimens should be sent in so as to arrive at South Kensington not later than the day before the meeting. They should be addressed to the Royal Horticultural Society Narcissus Committee, and each specimen should bear a label (waterproof) with the sender's name and some number by which it may be recognised, and be accompanied by a statement of the inquiry which the sender desires to put to the Committee, and of any facts which may guide the Committee in their decisions. The Committee will also be glad to receive communications or inquiries relating to the natural history and culture of Narcissus, also suggestions for investigation.

— A CORRESPONDENT remarks that—"Those who have not yet

obtained AZALEA DEUTSCHE PERLE should do so at once. It is without doubt the finest semi-double white variety that has yet been raised. The flowers are of large size, pure white, and their beautiful shape will commend them to all who have many bouquets to make. For early forcing A. narcissiflora is the variety relied upon, and we have a large stock of that, but its greatest defect is its poor badly coloured foliage. A. Deutsche Perle has fine dark green foliage, flowers very early, and when well known will certainly be the most popular white variety for early forcing."

— A GARDENER observes that "STATICE SUWOROWII is a charming plant when well grown in 5 and 6-inch pots for purposes of decoration during the summer months. At that period of the year it is totally distinct from other plants in flower, and is at once striking and effective in any arrangement of plants. Those who have effective and telling groups of plants to arrange either at home or in the exhibition tent should give this plant a trial, for in such arrangements its slender stem bearing its light pink flowers stand out boldly. It is easily grown. The seed should be sown in heat and the plants pricked off when large enough, and then potted into 3-inch pots, and from them into the sizes named. It will do well in any moderately rich fertile soil. Care must be taken not to grow the plants too warm. They must be gradually hardened to greenhouse treatment, and later in the season to the cool airy conditions of a cold frame. The treatment that will suit *Rhodanthes* after they are about 1 inch high will suit this plant well."

— WE have received from the NATIVE GUANO COMPANY, 29, New Bridge Street, Blackfriars, London, a pamphlet showing the results of the application of their manure in the field and the garden in the form of testimonials from cultivators who have applied it to various plants and crops. It may be remembered that Mr. H. S. Easty expressed his high approval of Native Guano on page 126 for Potatoes. The directors would invite the assistance and co-operation of landowners, farmers, and others to help in extending the use of the A B C process in their own neighbourhood, thus subserving not only their own direct interests, but also the welfare of the community at large. The multiplication of works for the treatment of sewage by this system would not only improve the sanitary condition of towns, but the manure being produced in proximity to farms, &c., would not have its costs augmented by carriage charges. Thus, what is now a nuisance to towns would become a source of profit to the country generally, and especially to farmers, who would have a valuable manure produced almost at their own doors. So far as we know, this is the best and cleanest method of disposing of the sewage of large towns.

— "J. R. S. C.," states respecting the CATERPILLARS complained of (p. 151) as destroying the blossoms of fruit trees (? *Carpocapse pomonæ*), "Perhaps the early application of some bitter substance, such as decoction of quassia, or something odorous, such as very weak solution of petroleum, syringed over the twigs, might prevent the moths from depositing eggs. The mite observed to infest *Eucharis* (p. 163) I am not sure about, but I presume it is a trombidium (allied to the harvest-bug therefore) and not one of the spinning mites of the genus *tetranychus*, so familiarly represented by the red spider of our houses and frames. Mites of the trombidium group pierce into plants, chiefly those of succulent and low growth. It has been urged that they do occasional benefit, because they have been taken preying upon parties of aphides."

— GARDENING APPOINTMENTS.—We learn that Mr. J. Udale, who has been for eleven years gardener to J. Watson, Esq., Shirecliffe Hall, Sheffield, and is well known in that district as an able horticulturist, has been appointed head gardener to Howard F. Paget, Esq., Elford Hall, Tanworth. The following have been made through Messrs. John Laing and Co.'s Nurseries, Forest Hill, London, S.E.:—Mr. Frankis as head gardener to Mrs. Grummont, Hatcham Grove House, Kent; Mr. A. Hawkes as gardener to Mrs. Williams, Palewell, Richmond; Mr. Hutton as gardener to E. de la Penha, Esq., Grove House, Clapham, Surrey; and Mr. Johnson as gardener to Arthur Bray, Esq., Bickley Park, Kent.

— AT the last weekly meeting of the members of the WAKEFIELD PAXTON SOCIETY an able and very comprehensive paper was read by Mr. J. H. Turner, the Hon. Treasurer of the Society, on "The Drainage of Land," a subject to which the Lecturer has for some years devoted considerable attention, inspecting from time to time the most important drainage schemes at home and on the Continent. Mr. Oxley presided, and Mr. Tunnacliffe occupied the vice-chair. After speaking of the useful



function which our rivers and streams perform as natural drainers of the land, Mr. Turner showed how important were the advantages which accrued when land was systematically and properly drained of superabundant moisture. By a thorough system of drainage the use of tillage was rendered much more effective, the land had an increased temperature in consequence of lessened evaporation, it was easier to cultivate and less labour was required in the operation, and, finally, the crops were earlier and more abundant. There was a long and interesting discussion, which was, however, entirely in harmony with Mr. Turner's paper. A hearty vote of thanks was given to Mr. Turner, on the motion of Messrs. Fallas, Newton, Tunnacliffe, and other gentlemen, who bore testimony to the valuable and practical character of the paper.

— IN the Transactions of the Penzance Natural History Society, Mr. Colenso calls attention to the rapidly increasing value as an article of export from New Zealand, of a NEW EDIBLE FUNGUS—*HIRNEOLA POLYTRICHA*. This Mushroom, first described from the East Indies and Java by Montagne, is of various sizes and shapes, some specimens measuring even a few inches. It is found in New Zealand growing on the trunks of trees, both on living and on decaying ones, especially on the latter while standing, particularly on the stems of *Corynocarpus laevigata* and on *Melicytus ramiflorus*. Both of these are endemic. The former is mostly confined to the seashore, where it often forms dense and continuous thickets. The latter tree is scattered plentifully throughout the country. When dry the Mushroom becomes shrivelled up, and is as hard as horn; when wet it is soft and elastic, almost sub-gelatinous. It grows in compact gregarious masses. The market for this fungus is China, where it is largely used by the Chinese in soups. It appears that another species of the same genus indigenous in North China has long been an article of commerce. Mr. Berkeley notes of our British species, *H. Auricula-Judæ*, that it was once a popular remedy for sore throats, and adds that it is still occasionally sold at Covent Garden Market. The New Zealand species is plentiful, and obtained at little cost, the drying of it being an easy matter. Originally the price paid to collectors was 1d. per pound; now it is nominally 2½d., while its retail price in China is five times this. The declared value per ton at the Customs ranges from £33 to £53 a ton, and is doubtless much below its real value. During the last twelve years some 858 tons of this fungus were exported, chiefly from the ports of Auckland and Wellington, and of a declared value of almost £80,000.

## A COMPARISON OF MANURES FOR THE GARDEN AND ORCHARD.

[A paper by Professor G. C. Caldwell, Ithaca, New York, read before the Massachusetts Horticultural Society.]

(Continued from page 157.)

How do these prices compare with those actually paid for these plant nutrients in such animal or vegetable manures as gardeners or farmers buy?

Two or three years ago there came to me from a gentleman of this neighbourhood a series of questions as to the comparative cheapness of several of these manures. The questions could be answered, at least with a proximate satisfaction, since the inquirer was fortunately able to give me the cost per ton, at his own place, of all the materials in question. I had not time to analyse samples of the manures, and for the necessary information as to their composition I had to refer to the tables giving the average composition of such matters; if my estimates could have been based on actual analyses of the materials, they might have been somewhat, but certainly not very, different.

The results of my calculations are set forth in the following table:—

KIND OF MANURE	Cost per 1000 pounds.	1000 pounds contained of			Cost, in cents, per pound of the		
		Nitrogen.	Phosphoric acid.	Potash.	Nitrogen.	Phosphoric acid.	Potash.
	dol. c.						
Cow manure .. ..	1 16	4	1.6	3.6	19.2	10.8	6.0
Horse manure .. ..	1 54	7	1.5	9.5	14.1	7.9	4.4
Night-soil .. ..	0 43	7	14.0	2.0	2.8	1.6	0.9
Rockweed .. ..	1 21	4	2.3	4.0	20.5	11.5	6.3
Fish-chum, half dry ..	6 50	43	50.0	....	9.1	5.1	....
Hen manure .. ..	4 00	10	16.0	5.0	27.0	15.0	8.4
Tanners' waste .. ..	0 78	72	19.0	....	0.9	0.5	....

— If my figures are not wrong, the cow manure is not a cheap source of plant food; it would have to be looked upon as more costly than commercial fertilisers were it not for the large amount of humus-forming material that it contains; this may offset the high cost of the important plant nutrients in it. But then we have just as much of this humus-forming material in horse manure; and the important plant nutrients in that, instead of being

more costly than in the commercial fertiliser, are actually cheaper. The night-soil costs nothing except for the hauling; the plant food in it is remarkably cheap, costing only about a fifth as much as in horse manure; and one can see no reason why a pound of nitrogen in it should not be just as good for crop production as a pound of the same nutrient in horse manure. Rockweed is an expensive manure, much more so than commercial manures, while the plant food in it certainly cannot be any more available or valuable than in fine bone meal, or in good horse manure, or than in the fish-chum which provides nitrogen and phosphoric acid at half the cost.

Hen manure is another expensive fertiliser: its plant food costs more than that in any other fertiliser, natural or artificial. Even nitrogen in ammonia salts costs only 22 cents, and phosphoric acid in the best superphosphate only 10 cents a lb. From my point of view I should say that a great deal more was paid for that manure than it was worth. As to the tanners' waste I had to do some guessing; I took it to be mostly hair and clippings of fresh skins; it cost nothing, except for the hauling. If I was right in my conjecture as to its character, it is rich in both nitrogen and phosphoric acid, and is by far the cheapest manure of all; but its action may be much slower than many of the other manures in the list, which would detract from its value. Granting all that, it would still appear to be a very cheap manure.

Making all due allowance throughout these estimates for the possible deviations from the general average composition of such materials, I still affirm that where they come out so widely apart as they do in some cases, they indicate real and undoubted differences in the cost of the plant food that may be of considerable practical importance to the buyer of such manures.

We may look for a moment, before I close, at this same matter from another point of view. On the University farm at Cornell, Professor Roberts, by a careful system of saving and housing his stable manure, and rich feeding of his stock, largely milch cows, has obtained a product that, analysed in my laboratory, was found to contain 0.7 per cent. of nitrogen, 0.4 of phosphoric acid, and 0.84 of potash. The manure was applied at the rate of 10 tons to the acre, which quantity would contain about 150 pounds of nitrogen, 80 of phosphoric acid, and 160 of potash. These amounts of the three nutrients would cost, in a commercial fertiliser, at the same rates per pound as in the other calculations whose results have been given, about 40 dollars; but this 10 tons of manure did not begin to cost so much—it was the waste of the animals producing a revenue by their milk, or growth, or work. It did undoubtedly cost something, but I think it is safe to say not over 1 dollar 50 cents a ton, or half as much as the horse manure of which an account has been given above. This would make the plant food in it cost less than half as much as in that manure, and much less than in commercial fertilisers.

It may seem to many that thus far I have spoken only unfavourably of the use of commercial fertilisers; but I would not wish to leave you with the impression on your minds that I regard them with disfavour. On the contrary, I do not believe we could get along without them in general crop-growing; and I see no reason why, if they are judiciously used, they should not do as much for horticulture as they are doing for agriculture. If the farmer succeeds better in getting profitable returns from an investment in a certain quantity of nitrogen, phosphoric acid, and potash in a superphosphate than the horticulturist does, it may be because the latter has not learned by experience, as the former has, how to get such returns; and as long as he can procure animal manures by any sort of management, he will continue to use them rather than get out of the ruts and learn how to use something else in place of them. So far as the humus is concerned, on whose apparent usefulness I have dwelt so long, its due proportion in the soil can be maintained by green manuring, and without getting or making much stable manure, or by spreading over the uplands some of the contents of the muck deposits that are to be found on so many farms.

In order, however, to enable these commercial manures to compete with the cheaper plant food in animal manures, they must be bought at such rates, and in such ways, as to reduce the cost of the plant food they contain to as low a point as possible. A comparison of the cost of plant food in mixed fertilisers, such as superphosphate and special manures, with cash prices for precisely the same quality in the raw materials used by the manufacturers for making up these mixed fertilisers, shows that in the last two years consumers have paid from 18 to 20 per cent. more for the plant food in the former than in the latter, or the raw materials; or, stated in another way, about 33 dollars expended in the raw materials would buy just as much and just as valuable plant food as would cost 40 dollars in superphosphates or specials. These figures represent the average difference in favour of getting the raw materials directly; sometimes the superphosphate is sold at such low rates that its plant food is almost as cheap as in any other form in the market; but, on the other hand, the difference is sometimes very much larger in favour of the raw materials. For instance: in one case a Connecticut farmer was asked to pay, and perhaps he did pay, 45 dollars for a certain quantity and quality of plant food that would have cost him but about 26 dollars in the raw material. These raw materials are such as nitrate of soda, sulphate of ammonia, dried blood, and dried and ground fish-waste, any of which may be used for charging a fertiliser with nitrogen; plain superphosphate—that is, without any nitrogen—for supplying the soluble phosphoric acid, and potash salts for the potash.

A Connecticut farmer tried this home-mixing last year, using 4 tons of dissolved bones, 1 ton of muriate of potash, and 1 ton of sulphate of ammonia, making thus an excellent and really ammoniated superphosphate. It cost him, including materials, freight, and labour, 36 dollars 20 cents per ton; analysed at the Experiment Station, it was reported to be worth, at current prices, 45 dollars, which was a very much better showing than was made by any one of the 50 samples of superphosphate analysed at the same station during the year. The consumer had at the same time the great advantage of knowing just what the mixture was made of; that, for example, its nitrogen was in the form of sulphate of ammonia, the most costly and the most valuable form of nitrogenous plant food, and not of roasted and ground leather-waste, an utterly worthless form of nitrogenous plant food. Other farmers of that State have done likewise, and with good results also, both in the analysis and in the field.

Instead of closing with some flourish of a peroration, it will, I think be more in keeping with the character of my lecture if I should sum up



in a few words the main points which I have attempted to explain or illustrate:—

1. That if the elements needed for the food of the gardener's or horticulturist's crops cannot be obtained in sufficient quantity from stable manure or other animal waste, they can be procured in the trade in unlimited quantity, and in every degree of availability depending on different grades of solubility, and in the greatest variety of mixtures, so as to suit any whim or fancy of crop or crop-grower.

2. That profitable crop-growing can be carried on, for many years at least, with these commercial fertilisers alone.

3. That the most evident distinction between stable manure and commercial fertilisers, and the distinction upon which we should therefore naturally base an explanation of the greater reliability of the former, is its large proportion of vegetable matter, or humus-forming material, of which commercial fertilisers contain practically none.

4. That soils contain, in a difficultly soluble condition, and therefore not easily fed upon by the crops, large supplies of all the needed elements of plant food.

5. That humus, through its decay in the soil, furnishes carbonic acid, among other solvent agents; and this carbonic acid appears to play an important part in the nourishment of crops by bringing the native insoluble stock of plant food within their easy reach.

6. That even if we add water-soluble plant food to the soil it becomes largely insoluble before the crop can feed upon it, or needs it; therefore soluble plant food added to the soil in commercial fertilisers needs also the help of the humus, finally, for its solution.

7. That plant food in most animal and vegetable residues used as manures costs much less than in commercial manures.

8. That, in spite of the disadvantages which, under some conditions, attend the use of commercial fertilisers, they are nevertheless a very important and necessary help in crop-growing.

9. That in using these fertilisers the wisest course appears to be to make one's own mixtures of the raw materials, as well for securing a better manure as for economy in first cost.

### CANKER IN FRUIT TREES.

At the weekly meeting of the Astwood Amateur Gardeners' Society, on Monday last, Mr. J. Hiam resumed the discussion on this subject. The last reference in the Journal to canker was to the effect that it was doubtless owing to bad drainage and cold clay subsoil. This theory was completely rebutted by individual cases mentioned one after another by Mr. Hiam, and from a specimen tree brought to the meeting. It was pointed out, for instance, that some of the worst specimens of cankered trees in the neighbourhood stood in marl banks 20 or 30 feet above the road, on cuttings through embankments; one, for instance, could be seen on the top of Mussy Hill, where no bad drainage could have occurred since the flood; or on the borders of marl pits with many of the large roots actually out of the ground from the earth shivering down with the frost, while perfectly healthy trees were growing within a few yards. Also that perfectly healthy trees in his orchard, 4 feet 6 inches in circumference at the butt, had not had their roots disturbed since they were planted forty years ago, whose roots were doubtless in the "cold clay," or they would have been blown away, while other young and otherwise healthy trees whose roots were in good old loam were killed even before they began to bear. He pointed out further on in the same article referred to that softsoap was used to kill American blight, and of course it killed the other insects which have so repeatedly been referred to, which do not appear to have a name. They were again shown as specimens. The feeling of the meeting appeared to be unanimous that there was no doubt whatever that insects caused the wounds, and that insecticides were the prevention and the cure.—J. H.

### LONDON'S LESSER OPEN SPACES—THEIR TREES AND PLANTS.—No. 7.

PASSING through St. James's Park, as I was "stepping westward," I noticed a little group engaged in the survey of an old Elm which had just been grubbed up. It appeared, however, that the persons were not lamenting its removal, but speculating as to its age and the quantity of wood it contained. I have repeatedly observed that, in regard to the age of trees, those who are ignorant of arboriculture are apt to make conjectures of the wildest sort. As wild are the exclamations some folks indulge in when from time to time decayed trunks are removed from the West End parks. Of course one regrets that they must go, but there are many about the parks that have already been too long reprieved, for they have hollowed branches actually dangerous during a gale. Doubtless all these might be lopped off, but where is the beauty of a mere trunk, and, should the tree be an Elm, that is liable to be suddenly uprooted? Our London Elms suffer much from the weakening attacks of the boring caterpillar of the goat moth, which might be even more troublesome were it not for the London sparrows. These dart down upon both male and female moths as they fly amongst the trees, and as each female contains about 800 eggs, every one that is killed settles a goodly number of embryo caterpillars.

So enclosed was it with walls and the rear premises of dwellings that few persons passing by had any knowledge of the extent of ground in Chelsea Park, or of the magnificent trees there; some few are spared, but the many have succumbed to the builder. Ten years ago one could there survey an avenue of Elms not, I think, to be rivalled anywhere about the neighbourhood of London, and many handsome Poplars. Of the rows of Mulberries planted in Chelsea for the purpose of silk production no trace remains. At one time Mulberries were numerous in London gardens, even near the heart of the City. But it does not seem to be a

tree planted now, though it will live on tolerably well amid smoke and fog, as witness sundry aged specimens I have seen removed within the last twenty years, and yet a few exist, which may possibly be above 250 years old. Long was there cherished the Mulberry of the ancient Manor Garden at Chelsea, under which sat Queen Bess, so the tradition goes, to learn her tasks. Its place is lost, but we know the spot where her Elm once stood on the outskirts of the Park, which sheltered her under a sudden shower of summer.

Chelsea is not badly off for open spaces now, in or near it, though the Chelsea men let their Common go and the Park is laid waste, and Cremorne Gardens built over, also the ground attached to the old Pavilion, ground memorable because it had some of the picturesque work of Capability Brown.

Just on the edge of Chelsea—in fact, once reckoned as part thereof before the names of Pimlico or Belgravia appeared—was the farm of Aybury or Ebury, formerly with extensive market gardens, which diminished at last to the central space of Ebury Square; this, after struggling awhile as a nursery, was made into a recreation ground, much needed by the dwellers thereabout, but in truth it is not very attractive, perhaps for want of funds. The smallness of the space forbids the idea of much tree-planting, therefore it is desirable to make the enclosure bright with flowers as far as possible, or at least with cheerful-looking shrubs. Owing to the protection from rough winds that plants have in some suburban districts, it is easy to keep a few autumn species blooming until we are hailed by those that are spring pioneers. In such places as Ebury Square, Everlastings, particularly Helichrysums, would flourish and last on a good while, so would some Pansies and the familiar Convolvulus. The dwarf dark-leaved Beet would also be an attractive plant, standing moderate frosts. Lobelias of various kinds are getting to be freely introduced in these smaller spaces, and certainly with advantage. Another hint I gleaned from this square, which I throw out for the gardeners of similar spots, and that is when your grass does not incline to grow well the simpler the outlines of the flower beds surrounded by it the better. Prefer squares or circles to designs of varied lines or angles, which only make the poorness of the grass more obvious.

Those who may wish to see London evergreens to advantage may be advised some time in the dull season to visit the Royal Hospital Gardens, Chelsea. Not that this place offers any number of choice or unusual sorts. Wellingtonias, Deodars, and others no strangers to us, are conspicuous by their absence only, but the older favourites muster well, and the walks in that part of the gardens near the Bridge Road are agreeably sheltered by mounds and banks of evergreens, perhaps here and there too closely set; and it may be because some of these thrive where the less sombre species seem to flag, that there is an array of the dark Yews, Cypressess, Thujas, Firs, Junipers, Bays, and varieties of the Box. There are fine examples of the Japan and Cherry Laurel, of the Barberry and Sumach, intermingled with Hollies, many of which doubtless surpass their companions in age if not in size. As elsewhere, so much partiality has been shown to the Privet that it is used not only for hedgerows, but also placed in clumps; it seldom puts out any flowers when growing in London, even if not subjected to the frequent clipping sometimes inflicted upon it. The Laurustinus is another shrub that is generally prevented from blossoming by the town atmosphere. In what is called the Governor's Court the central space contains a group of large shrubs, almost trees some of them, that may have been planted at an early date of Her Majesty's reign, surrounding an antique summerhouse, and these evergreens show the advantage of the screen from the north-east wind which a pile of buildings gives on contrasting them with others on the bleak boundary of the gardens. Along the south terraces towards the Thames the beds contain a good show of flowers during the summer, but they look bare to a February visitor. Some of the old pensioners greatly interest themselves in the little plots of garden they are allowed to cultivate, and they manage to gain a trifle by selling to visitors pots of Musk, Pelargoniums, &c.

Quite recently the last of the Ranelaghs, a man better known to London volunteers than to gardeners, was laid to rest in Brompton Cemetery. Few strollers about the Hospital gardens call to mind his ancestor who died in 1733 possessor of a Chelsea estate, a nobleman, too, who had distinguished himself as a patron of horticulture, with a turn for experimenting. When the Government acquired the property a part of Viscount Ranelagh's grounds was added to the east side of the above gardens; part became streets and roads. The name of Wilderness Row was for awhile a reminiscence of a plot which, according to the Georgian fashion, was planted to exhibit a natural wildness. Nearly all the trees hereabout show signs of being younger than his lordship's time, the possible exceptions are some White Poplars and Elms. The soil here is well adapted for species of the Poplar family, also of course for Willows; and near the Thames bank were formerly many Willows, one walk specially a favourite, beside which ran a streamlet, fed by springs within these gardens, but this has dried up, and its shading Willows are gone. There yet remains, however, that somewhat peculiar double line of old Elms, the branches of which were tied back when the trees were young, so that they now present odd angles as they bend down from the trunks. Ash trees, so common in Pimlico Gardens, are scarce about Chelsea.

Fronting the Royal Hospital is a square space open to the public called Burton's Court. There are rows of Limes; the avenue down the middle has the finest and oldest trees. They were planted at a time when there was a scheme afloat for forming a grand avenue of these and other trees to extend from Chelsea to the Palace of Kensington. A number of the Limes in this space have the curious disfigurement I have elsewhere seen—viz., a seam or cleft reaching from the base of the tree almost to its top



I do not think this is caused by an insect. Here also some old Elms and Poplars, with juvenile Sycamores and scattered shrubs.—J. R. S. C.

#### DEATH OF PROFESSOR MORREN.

THE announcement of the death of Professor Edouard Morren of Liège will be received by a wide circle with profound regret. At the comparatively early age of fifty-three he closed on the 28th ult. a life which was spent ungrudgingly in advancing the study of botany and horticulture; and he has left behind him a band of devoted friends, who will not cease to mourn his departure.

Dr. Edouard Morren was the son of Professor Charles Morren, a distinguished Belgian botanist, and whom he succeeded in the Botanical Chair in the University of Liège. He was born at Ghent on the 2nd December, 1833, his father being at the time Professor of Physics in that university. From the time of his appointment Dr. Morren devoted himself assiduously to the duties of his position; and though he has not left behind him any great work, his contributions to periodical publications have been both voluminous and valuable. In 1855 he undertook the editorship of *La Belgique Horticole*, which his father founded in 1850, and which has been continued up till the present time, though, in consequence of his failing health, its publication has of late been somewhat irregular. It is in the pages of *La Belgique Horticole* that his most distinguishing work has appeared, and this is a monograph of the Bromeliads.

The Botanical Institute of the Liège University and the Botanic Gardens of the same town owe their origin to the exertions of Professor E. Morren, and have become established amongst the leading institutions of their kind in Belgium, forming admirable monuments to his energy and botanical knowledge. The gardens are of moderate extent—about ten acres—and are situated in the town within a convenient distance of the station. They are tastefully laid out, and contain two extensive ranges of glass houses in the northern portion of the garden, one consisting of a series of divisions forming three sides of a quadrangle mostly occupied with small plants, and the other on a slightly elevated plateau is devoted to larger specimens, including some handsome Palms. The great feature is, however, the collection of Bromeliads, which is the most extensive in cultivation, several houses being appropriated to the larger genera. This family had been made a special study by Professor Morren, and the formation of such a wonderful collection has been the work of several years. Houses are also allotted to tropical aquatic plants—Cactaceæ, Orchids, Ferns, Nepenthes, and Marantas—Palms having considerable space in the large range mentioned. Not only are the collections interesting botanically, but they are remarkable for their excellent health, and such good culture is rarely seen in establishments of this kind, especially on the Continent. A portion of the garden is devoted to hardy plants, and a rockery has been recently formed for alpine. The trees are mostly of moderate size, but there is a good number of species, and it is evident in every department that the utmost has been made of the space at command. Professor Morren took a thorough interest in horticulture as well as in botany, and visitors from Great Britain were always sure of a kindly welcome.

#### THE CLAPTON NURSERIES.

A VISIT to Messrs. H. Low & Co.'s nurseries at Clapton is almost bewildering to a stranger, and the enormous number of plants grown is surprising even to those who are familiar with the large trade collections. Orchids are a great specialty, and to them innumerable houses of all sizes are devoted; Palms and Ferns also occupy much space, Bouvardias and Tree Carnations constituting other important features, each having several large houses appropriated to them. A considerable number of Heaths is grown at Clapton, but not so many as used to be the case, for these with Cytisus, Camellias, and other plants have been transferred to the Enfield Nursery, where they are grown in thousands. A hurried run through the Orchid houses at Clapton gives some idea of the demand existing for such plants and how it is supplied. There are scores of houses, and all packed with rare, valuable, and useful Orchids. Numberless Cattleyas of the best species in all sizes up to enormous specimens 3 feet or more in diameter, with large leaves, leathery in texture and rich dark green in colour, the pseudo-bulbs stout and plump. Phalænopses are also wonderfully abundant, a grand stock of plants being comprised in three or four large houses, and all the plants are in capital condition, many flowering and others giving promise of a magnificent display later on if the weather prove favourable. Dendrobiums have much space devoted to them, and amongst the ordinary stock of species is a pretty display of an excellent winter-flowering Dendrobe, *D. luteolum* (fig. 29), which was introduced by this firm some years ago. This is a charming, easily grown Orchid for winter, and the flowers are of a most pleasing soft primrose tint. It flowers abundantly in an intermediate temperature, and the blooms last well either on the plant or cut and placed in water. Cypripediums of all kinds are admirably grown, and that handsome species, *C. Lawrenceanum*,

is represented by a stock of plants such as is seldom seen. A novelty with finely marbled foliage has also just flowered and been submitted to Professor Reichenbach for name; the foliage is very handsome, something after the style of *C. Hookeræ*, but the flower we did not see. Vandas, Aerides and all the other leading genera are also represented in these and other houses.

Odontoglossums are in strong force, seven or eight long houses being devoted to *O. Alexandræ* and its varieties alone, and they are all growing like young Lettuces. It is said that 150,000 of these Orchids are grown, and the number does not appear to be exaggerated when the stock is seen. Some grand varieties are flowering amongst them, and one richly spotted form opening on the day of our visit will probably take a place amongst the high-priced novelties of the season. Particularly important just now is a houseful of imported Orchids just received in excellent condition and comprising some of the best examples of *Vanda cœrulea* that we have seen. Huge pieces with fresh, healthy-looking leaves such as none would fear trying to establish are abundant, and it is seldom that this favourite Orchid is imported with such little injury. There are more failures in attempting to establish imported plants that have suffered severely in transit than from any other cause, and one of the surest means of succeeding with such plants is to obtain those in a plump condition. This is more especially necessary with the non-pseudo-bulbous Orchids which have no reserve supplies of nutriment to support them, and Vandas are most easily injured permanently. Throughout the nursery the health of the plants is astonishing, and it is evident that they receive excellent cultural attention, for such large collections would soon show the effects of carelessness in a most disastrous manner.

#### CHAMÆROPS HUMILIS.

WE have a large plant of *Chamærops humilis*, which was raised from seed about fourteen years ago. It stands about 6 feet 6 inches high, including a No. 2 pot. For the last three years it has thrown out fruiting spikes, which grow out about 8 inches, and some of the little heps grow as large as a Sweet Pea seed, then fall, and the spike dies. The plant stands in theinery, having the same temperature as the Vines, and is so placed as to get the sun from ten o'clock all day. We keep it rather dry all winter, and never have any fire heat before the Vines are fairly started—say about the end of March or beginning of April—after which the sheath makes its appearance from the axils of the leaves; then we begin to give it some liquid manure made from soot and cow dung, at the same rate that we give to other plants, but more often. I have tried every means that I can think of, but cannot bring the fruit to perfection. I should feel very grateful if any of your correspondents could assist me in the matter.—H. H.

#### HIMALAYAN RHODODENDRONS.

To see one or two of these after such a prolonged dearth of flowers indoors is indeed a pleasant sight, especially as the colours are so attractive. *R. arboreum* and *R. argenteum* are now in full flower, and they are very welcome in a large conservatory with many others, some of which are just bursting their buds. They are planted out in beds, the house being heated only to the extent of excluding frost. Planted in such cool structures seems to be the only way to get them to flower early. Those from both Nepal and the Himalayan Mountains mostly defy all attempts to bring them to a flowering state out of doors north of London. We have often heard of trials being made, but we have never yet heard of a real success. We have tried in the most sheltered places in our garden, under trees which gave a good protection, especially in spring, and also in warm greenhouses, with results which were far from being satisfactory. In such localities as the Isle of Wight, certain parts of Cornwall and Devonshire, fair success may be attained with most of the species. It does not appear that the plants are incapable of standing even our severe frosts when not in a growing state; but here is the difficulty. They seem to grow just at the time they are not wanted, and, like many other plants we try to grow in the open, they are severely cut or destroyed by late spring frost. A few days of mild weather in early spring bursts the buds or develops them to such an extent that they are easily damaged. The loss of their leader forces the shoots to break perhaps at three or four places; the result is weak shoots totally unfit to stand the late autumn frosts, and which, from the weakened state of the plants, rarely show flower until the second year if they have managed to escape the first.

Frigid domo, light mats, and other material are often used for protection; but as this entails considerable labour it is a very doubtful question whether it will be even half repaid by results; besides, the larger the plants grow the more labour is required in covering, and which extends over two or three months in the early part of the year. That they will not succeed in most parts of England without protec-



tion of some kind has been proved, and it seems a hopeless task trying them until we obtain a warmer climate, as some expect. Our best plan seems to be to persevere in their cultivation indoors, and we may yet be able to flower them in a small state and keep them within

leaves 12 to 15 inches long, deep green, and wrinkled on the upper surface and silvery underneath. The flowers are 4 or 5 inches long and as many broad at the mouth, white tinged with rose, becoming deep towards the base, and together forming a glorious mass. R.



Fig. 29.—DENDROBIUM LUTEOLUM.

the desired limits. Planted out, however, where they can have plenty of head room they form enormous bushes, giving an annual display of flowers, ranging in colour from the most intense scarlet to pure white, many of them also emitting a most delicious fragrance. R. argenteum is said to grow as a tree 40 feet high, with magnificent

arboreum has a much more compact habit, studded with bunches of intense scarlet flowers. Others, such as R. Nuttalli barbatum, R. Edgeworthi, R. Falconeri, R. Aucklandi, and R. Thompsoni, will soon follow, when we propose drawing attention to their merits in the order they appear.—M. S.



## HINTS ON ORCHID CULTURE.

As the following hints on the requirements of Orchids are chiefly intended for amateurs or beginners, the instructions have been made as brief and simple as possible, the object being to convey such information as will enable inexperienced persons to overcome the few difficulties most frequently encountered, and to guide them in the selection of easily grown species. The rapidly increasing popularity of Orchids has been materially assisted by the simplification of their culture, for so long as it was supposed that they could only be grown in highly heated houses specially constructed for them they were confined to few establishments. When, however, it was found what a large number could be successfully grown in lower temperatures in ordinary houses, the number of their patrons was speedily augmented. The increased demand caused larger numbers to be imported, and the result was a considerable reduction in the prices, which has placed them within the means of thousands who a few years ago would have regarded them as quite beyond their reach. It has been proved that a great part of the difficulty in Orchid culture was imaginary, and that with ordinary care the majority of Orchids can be grown satisfactorily. Some, of course, cannot be managed so readily, but these need not be included in small collections, as there are plenty of others to select from without them. Still, it is necessary to observe closely the peculiarities of the plants, and by arranging them in suitable positions in a house numbers of very different habit may often be accommodated as well as if several structures were at command. Plants frequently evince partialities for particular positions, and while thriving in one part may refuse to make progress in another a yard or two away. Such facts as these can only be learnt by observation, and success is largely dependant upon them. It is also highly important that the plants be always clean, or the best culture will be nullified, and one of the most experienced orchidists of the present time attributes the health of his plants mainly to keeping them free from insects. With close attention to these, and similar apparently small matters to be afterwards referred to, no one need fear undertaking the cultivation of the most useful Orchids.

## PROCURING ORCHIDS.

**ESTABLISHED PLANTS.**—If it is intended to commence with a collection of established Orchids it is advisable to purchase small plants from any nurseryman who makes them a specialty. This is advantageous in several ways. Strong plants can be obtained that will not be so likely to disappoint the amateur cultivator. Any varieties or species required can be insured being true to name, and the plants having been properly potted will give little trouble the first year. They can also be purchased at prices to suit all pockets now, and the expenditure of from £5 to £10 will procure a varied little collection to start with, the larger amounts being chiefly required for the varieties or specimens of greater size. In the former case it is preferable to state what is required and the amount intended to be spent, leaving the selection to the nurseryman unless the buyer has a special liking for certain species. When a large collection is being formed for several houses it will have to be decided whether it shall contain as great a number of species and varieties as possible, or whether there shall be a quantity of some of the leading useful Orchids, such as *Odontoglossum crispum* (*O. Alexandræ*). In all cases it is preferable to form collections gradually, commencing with a small number and increasing them as the cultivator's knowledge advances.

**IMPORTED PLANTS.**—Some amateurs prefer starting with a number of imported Orchids, and though it is longer before the flowers are obtained, with some probable losses in the meantime, yet there is the chance of obtaining novel varieties amongst others of indifferent merit, and this alone induces people to purchase them. Imported Orchids may at times be procured very cheaply, and one amateur states that he never gives more than a shilling each for *Odontoglossums* and four or five shillings for *Cattleyas*, *Lælias*, &c., with others in like proportion. This, however, necessitates a frequent attendance at the sales, with a thorough knowledge of the plants. Importations vary considerably apart from the value of the species or varieties, for the condition in which the plants are received makes a surprising difference in their subsequent progress. Plants with comparatively fresh green leaves and stout pseudo-bulbs are worth very much more than those that have lost the greater part of their foliage, have withered exhausted pseudo-bulbs, and perhaps arrived at a time of year when they are likely to suffer from frost. These points have to be considered in purchasing imported Orchids, and there is so much uncertainty about it that it is far better to rely upon established plants for commencing and add to the collection afterwards as desired.

When, however, imported Orchids are obtained they require some care to get them into condition for potting or basketing. They must first be well washed in tepid water, and then be placed in a shady position in a temperature from 50° to 60°, the *Odontoglossums* of the

*O. crispum* character requiring the coolest place, and the *Cattleyas* and *Dendrobiums* the warmest. Those who import Orchids in large quantities usually devote a house to them, where they are either spread out upon a slightly moist stage or hung from the roof, the air being kept in a moist condition. The object is to induce the growths to "plump up," as it is termed; and when this has been effected and the roots are showing freely they can be potted in the usual way. When small numbers are being established the best way is to place the plants in pots of rough clean potsherds and charcoal. The neck of the plant must be well elevated, and some prefer laying the plants upon the surface until roots are formed. Mr. J. Douglas has in this way succeeded admirably with some Orchids ordinarily considered difficult to establish. Most of the non-pseudo-bulbous Orchids like the *Cypripediums* may be potted as described, and all seem better than when laid upon stages, as water can be supplied more freely. The principal point is to give sufficient moisture to induce root-growth without causing any portion of the plant to decay, as it is very liable to do after its long journey and the severe drying it has had.

## STRUCTURES FOR ORCHIDS.

The fanciful idea that peculiarly constructed and expensive houses of various kinds were essential for Orchids having been dispelled, it was soon found that much less depended upon the form of the structure than had been long imagined, and that if the requisite heat could be provided the plants would succeed in houses of all kinds and in all positions. The primary consideration is insuring the full exposure of the plants to light with sufficient means at command to break the force of the sun in the hottest weather. In our climate this is most important, for it must be remembered that exotic Orchids, even those needing the coolest treatment, came principally from equatorial regions, where, though at great elevations, they are exposed to a nearly vertical sun during a great portion of the year. The influence of light upon Orchids is astonishing; it matures the foliage and growths or pseudo-bulbs and lays the foundation for successful flowering another season, for with these, as most other plants, much depends upon the ripening of the current year's growth. It is advisable to employ houses with roofs that offer the least obstruction to light, those having large heavy rafters or broad laps being avoided; and it is absolutely necessary that the glass be kept clean at all times. Some advocate close glazing, relying upon the use of the ventilators for admitting the requisite amount of air, but in the cool houses for *Odontoglossums* and *Masdevallias* a kind of permanent ventilation is provided by leaving a space between the bottom pane of glass and the eave of about one-eighth of an inch, the glass overlapping the wood sufficiently to throw off the water; and in very severe weather these spaces can be stopped by pieces of wood. There is a large cool house at Downside, Leatherhead, with a roof constructed in this way, and it is rarely found necessary to use the plugs mentioned. For tropical Orchids of the *Cattleya* and *Phalænopsis* type the ordinary close glazing is preferable, and the ventilation can be satisfactorily arranged in other ways, as will be described under that head. It is important to avoid drips, as these are often destructive to Orchids, and the strongest plants soon suffer if exposed to them. Rafters are grooved the whole length to take off the condensed moisture that accumulates along the bars, but the most effective method is to have a narrow piece of zinc screwed or nailed to the under side of the rafters, and bent so as to form a little channel that will readily convey the condensed moisture to the lowest part of the roof.

The houses may be span-roofed or lean-to, according to convenience, and the aspect is not of very much importance, though the former may preferably run north and south for tropical Orchids, thus giving an east and west aspect for the two slopes, lean-tos for a similar purpose running east and west, with the slope to the south, or for cool Orchids to the north. A north aspect is not essential for cool Orchids. East or west, or indeed any aspect except direct south, can be made to suit them; but the more exposed these plants are to the rays of the sun in summer the greater the attention they will need in supplying them with water, and it is also frequently difficult to prevent the temperature rising unduly high; otherwise they must have the lightest position possible, and dark corners, or those much shaded by trees, should be avoided. Houses of moderate breadth and height are the best for most Orchids, but *Cattleyas* and *Lælias* thrive in lofty spacious structures better than other plants, and seem to prefer such houses, as can be seen in the cases of the two magnificent *Cattleya* houses at Mr. W. Lee's and Messrs. J. Veitch & Sons', the latter being probably the largest house devoted to Orchids in this country. It is 132 feet long, 22 feet wide, and 11½ feet high in the centre; and the plants are all in capital condition. In private collections, however, some of the best grown plants are seen in small houses, and for cool Orchids they are now generally employed with the roofs pitching on to the eaves nearly level with the side stage, thus dispensing with side lights. For small-growing *Odontoglossums* and *Masde-*



vallias these are very suitable, but for taller plants and in warmer houses side lights are advisable, as they give greater space for arranging them and admit more light. A span-roofed house intended for a large miscellaneous collection of Orchids should be in two or more divisions according to its size, and the kinds of plants that are to be cultivated having the warmest division at the boiler end, and the coolest can be employed for *Odontoglossums* or plants in lower, as the blooms last much longer in a lower temperature and less moisture. A well built lean-to frame against the side of such a house can be used for *Odontoglossums* if sufficient piping be supplied to prevent the temperature falling below 40° in the winter, and in several gardens they are so grown with excellent results, the plants being placed upon a bed of sifted ashes and carefully looked after to prevent the depredations of slugs.

When houses are set apart for Orchids the staging to be employed requires some consideration. The plants need a constant moisture round the roots and foliage when in growth, and cool-house Orchids must have it at all times. This is provided in various ways. In some cases the stage is constructed of slate slabs with iron supports, and upon it is placed a layer of fine pebbles, spar, shells, small coke, or coal, the chief objection to the two last being their dull appearance, though they are now much employed in nurseries. Whatever material is selected it must be kept constantly moist by syringing or otherwise, and the plants are either stood direct upon the material or elevated on inverted pots. In Messrs. J. Laing & Co.'s nursery corrugated zinc is now generally employed as staging for Orchids and other plants, being covered with a layer like that described. It

is very durable, and forms a useful storehouse of moisture, while preventing any undue accumulation. Open wooden stages are frequently placed over the solid stages and the plants arranged on these, where, if the supports are isolated by means of little cups kept filled with water, as is now practised in some of the best collections, there is no danger from slugs, woodlice, or other pests of that character unless they are introduced in the soil with the plants. In warm houses the lower stages are often planted with *Panicum*, small Ferns, *Selaginellas*, &c., which have a pleasing appearance and serve moreover to preserve a healthily moist atmosphere. They are sometimes objected to as harbouring insects, but with the double stage there is nothing to be feared in that respect. For

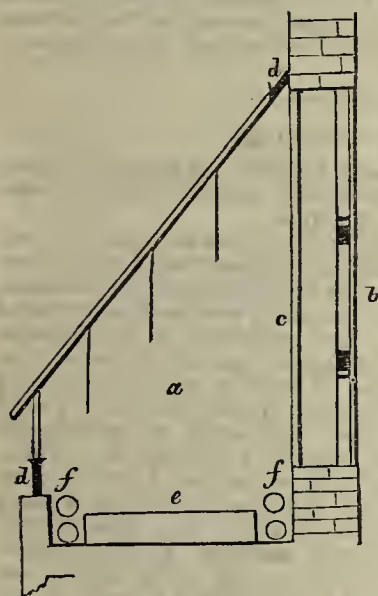


Fig. 90.—An Orchid Case.

uch houses as that at Oldfield, Bickley, where the *Phalænopses* are early all suspended from the roof, it is a great improvement and very beneficial. When central stages are employed they are usually of open lattice shelves, over tanks or beds of some material, old leaves being occasionally used as the moisture-holding substance. In many houses, especially those for *Odontoglossums*, tanks are constructed on each side of the path under the stages to serve as reservoirs of rain water, and to provide a continual supply of moisture in the air. If intended merely for the latter purpose they are usually only shallow troughs, 4 to 6 inches deep. Paths can be formed as desired, those of red or ornamental tiles having the best appearance, but those of any loose material, or even of the earth itself, are equally good as regards the health of the plants.

From the foregoing remarks it will be seen that houses can be easily altered and fitted to suit Orchids; but in some gardens it may not be convenient to go to that length, and the houses must be utilised as they are. This need not deter anyone from commencing the culture of Orchids, for some of the best can be grown with other plants. For instance, the ordinary stove will accommodate a far greater number of tropical Orchids than is usually supposed. Vineries or Peach houses where forcing is proceeding exactly suit numbers, such as *Dendrobium nobile*; and a warm conservatory, which in some places is maintained at a temperature intermediate between that of a stove and a greenhouse, is admirably adapted for many Orchids when in flower; and we have seen some extremely pretty effects produced by the tasteful grouping of *Dendrobiums*, *Oncidiums*, *Odontoglossums*, *Cypripediums*, and even *Phalænopses*, with Ferns and graceful foliage plants. At Furzedown, Tooting, the residence of C. Seeley, Esq., the gardener, Mr. Laing, has for many years made groups of this character a special feature in the conservatory early in the season. Cucumber and Melon houses, Pine pits,

forcing houses, propagating houses, warm frames, and other structures afford abundant space and convenience for the majority of heat-loving Orchids, the only house really unsuited for such plants being the greenhouse, in which the atmosphere is too dry and the plants too much exposed to draughts to thrive.

An instance was given some time ago in the *Journal of Horticulture*, showing how an amateur had succeeded in growing Orchids in a small case erected on a lead outside a window, which is worth notice as illustrating how easily Orchids can be accommodated. A diagram of this is given in fig. 30 which will be understood from the following explanation: *a*, the case 6 feet long by 3 feet wide; *b*, the window of the sitting room; *c*, glass door with 6 inches between it and the window, in order to prevent damp entering the room; *d*, *d*, ventilators; *e*, body of the case 6 inches deep, filled with sand, the bottom being well drained; *f*, *f*, hot-water pipes. The ventilators were wooden shutters 18 inches long and 6 inches wide, the space opposite these inside being covered with a woollen net on a frame to filter the air as it passed through. In this miniature structure with liberal supplies of water the owner succeeded in growing the following Orchids in a smoky district of London. *Aerides crispum*, *A. virens*, *Aganisia pulchella*, *Brassavola acaulis*, *Broughtonia sanguinea*, *Calanthe vestita*, *Camarotis purpurea*, *Coelogyne cristata*; *Dendrobiums formosum*, *Lowi*, *pulchellum*, *Jenkinsi*; *Huntleya marginata*, *Laeliopsis domingensis*, *Peristeria elata*, *Phalænopsis amabilis* and *P. grandiflora*, *Saccolabium curvifolium* and *miniatum*, *Sobralia macrantha*, *Sophranitis grandiflora*, *Stanhopeas aurea*, *insignis* and *tigrina*, and *Vanda suavis*.—AN AMATEUR.

(To be continued.)

## SOME SINGLE ROSES AS DECORATIVE PLANTS.

[An article by Mr. T. W. Girdlestone in the "Rosarian's Year Book."]

(Continued from page 158.)

MR. BAKER'S group VI., bringing together *spinosissima* and *Alpina* (the thornless Rose), is rather a satire on the classification of plants merely by general external appearances. I must own to a decided preference for the Touch-me-not Rose all set with little wilful thorns over the plausible insinuating *alpina* (or *pyrenaica*). A good plant of the burnet Rose in full bloom is a "charming sight to see," but though when cut fresh and young a bunch of Alpine Roses is pretty and very fragrant, the flowering is too desultory to be ever very effective on the tree, while nothing short of an earthquake, or at least a general upheaval of rocks, will secure the eviction of its suckers from any Alpine garden in which *Rosa alpina* may have been domiciled.

*R. Ecæ*, with its brown stems covered with equal prickles, appears a very characteristic plant, but I have not yet seen it flower; and a definite position is hardly yet assigned either to it or *R. Beggeriana nigrescens*, a slender growing but vigorous plant, producing freely numerous delicate white blossoms, which are very effective among the graceful bluish-green foliage, and which are followed by brilliant little hips like waxwork.

*Rosa canina* (IX.) may truly be called the slave of the Rose family, and like *Cinderella*, is only thought of in work-a-day garb, and is unquestionably sat upon. It is designated by the contemptuous name of dog, and then dragged out from the hedgerows to be the standard-bearer of Queen Rosa's army; it is cut to pieces to support the mounted infantry that they may achieve glorious victories, and be decorated with medals on the tented field; uniform drills are the rule for its very seedlings till they are drafted into the line for active service with the colours; moreover, it undoubtedly helped to originate many garden varieties, while some of its own variations are very pretty; and yet hardly anyone seems to think it deserving of a place even in the wildest of wild gardens. The versatile Gerard, in his quaint and gossiping Herbal, can hardly condescend so much as to mention poor *R. canina*, "a plant so common and well-known, that it were to small purpose to use many words in the description thereof; for even children with great delight eat the berries thereof when they be ripe, make chains and other prettie gewgaws of the fruit; cookes and gentlewomen make tarts and such-like dishes for pleasure thereof, and therefore this shall suffice for the description." (They must have had good digestions in those days, when it was possible to sharpen an appetite by botanising on the site of the present barracks, and gathering *R. pimpinellifolia* "in a pasture as you goe from a village hard by London, called Knightsbridge unto Fulham, a village thereby;" for the old Surgeon repeats that "the fruit when it is ripe maketh most pleasant meats and banqueting dishes, as tarts and such-like; the making whereof I commit to the cunning cooke, and teeth to eat them in the rich man's mouth!") Another aggravation to which *R. canina* is subjected is the treatment of its different forms. This Rose has gone into variations literally by the hundred, to try and obtain horticultural recognition, but without success. For as soon as it has elaborated a fresh attraction and appears in the glory of deeper colour, larger flowers, downy leaves, or what not, someone is sure to be ready with a sesquipedalian name of probably as many consecutive consonants as his own patronymic, and we are indulged with the "discovery of a new species!" The poor dog can gain neither credit nor admission any way. Some years ago, when a crowded train reached Cologne, certain English passengers, engrained with the black dust of the hot night journey, immediately started off to get a bathe, their German fellow-travellers, whose demands on the water supply were—well, more Teutonic—promising to keep their seats for them in the compartment. But when the bathers returned several shades lighter in colour, and radiant in clean collars, the exact mind of the Teuton refused to admit their identity with the whilom grimy companions, and informed them that they must find room elsewhere, that compartment being reserved! So that their smartened exterior nearly cost the renovated Englishmen their seats in the train. This trying to make a specific distinction between a



man before and after his bath is the sort of treatment that is discouraging to all effort in the direction of improved appearance—even when applied to Roses.

*R. rubrifolia* (IX.), of which Andrew's name of *lurida* is much more descriptive, is a very distinct and interesting plant, with its metallic-blue tinted foliage and weird quaint-looking flowers whose long attenuated sepals extend far beyond the rosy petals, a veritable Rose of Fairyland. The red-brown stems are covered with a bloom like that on black Grapes, and this blue colour seems to pervade the whole plant, making with the delicately tinted flowers a most perfect "arrangement" in rose colour and French grey. The beauty of the plant is maintained until late autumn by the great clusters of from fifteen to thirty smooth bright-red somewhat globular heps which succeed the bunches of flowers. Some of the varieties of *R. indica* (IX.) also are interesting from the freedom with which they bloom again during the autumn till cut off by frost, and for their intense fragrance.

*R. rubiginosa* (X.) (= *eglanteria*, *suaveolens*) our native *Eglantine*, or *Sweetbriar*, is much prized for its fragrant foliage, though it is only when they see the plant laden with heps that it seems to occur to some people that it must at one time or other have borne a very ornamental mass of flowers; and floral commendation is generally reserved for such varieties as the double scarlet *Sweetbriar*, a very pretty sort truly, but with neither the vigour nor the fragrance of the species. Nevertheless, one garden single variety is really a lovely Rose, with thick, pure white petals, each margined with a bright picotee edge of clear purple. It is very vigorous, and rejoices in the picturesque name of "Hebe's Lip," though why so is not obvious: since Hebe's lips could hardly have been so white as the petals, or so dark as the edging—unless she "enjoyed extremely bad health" as they say in the west, or else was perpetually sipping the ruby nectar she should have been handing round.

The white-flowered form of *R. pulverulenta* (= *glutinosa*), another member of this group, makes a pretty pendent on the rockery to *R. lucida*. It has compact white flowers which are succeeded by elongated red heps, and its smooth dark stems are clothed with deep green leaves consisting of seven rounded leaflets.

But, of course, it is by the so-called Austrian Briars that the *rubiginosæ* have been made famous in gardens. The double forms, *Persian yellow*, introduced from Persia in 1837 by Sir H. Willock, *lutea flore pleno* or *Williams' double yellow*, and *Harrisonii* sent from America in 1830, though somewhat similar, are all good and desirable Roses; but none of them exceed in purity of colour or grace of outline the single flower of the species *R. lutea*, a plant whose deep pure yellow blossoms, mounted on their brown stems against their natural background of dark-green foliage, produce an effect only eclipsed by those of its brilliant variety *R. punicea*. "Copper" Austrian Briar is a misnomer; for the petals of this Rose, though buff-coloured on the outer side, are of a dazzling orange-scarlet colour on the inside, which is fully displayed by the expanded flowers; and a few branches of this Rose and *R. lutea* lightly arranged in a good-sized piece of *Valerie* or other deep-coloured pottery, makes as distinguished a bouquet as can well be.

Let it not, therefore, be said that single Roses are not worth growing as decorative garden plants; for if their individual flowers are evanescent, they are also innumerable, and so the plants remain gay longer than many other Roses, even without reckoning their harvest decoration of scarlet fruit in the autumn; and the majority of them are no trouble whatever to grow. *R. berberidifolia* *Hardii*, *Incida*, and *nitida*, with *Ecæ*, *pulverulenta flore albo*, and *Baggeriana nigrescens*, are charming representatives of the genus *Rosa* for the rockery, and *R. polyantha* is the most rapid and ornamental of climbers; while, with all deference to Mr. George Paul, the true scarlet Rose (to speak pinaforically),

"Resisting all ambition  
To come fit for exhibition,  
Still remains a single Rose."

## ORNAMENTAL GRASSES AND EVERLASTING FLOWERS

Now that many amateurs and others will be scanning seed lists with the object of selecting plants which are easily cultivated and extremely useful, I would call special attention to the ornamental Grasses and Everlasting Flowers. These are not only pretty when growing in summer and autumn, but their heads and blossoms, when cut at the right time, remain in perfection throughout the whole winter, and this is a much-desired quality not found in most flowers. Tables may be decorated, rooms adorned, and all floral embellishments executed by their aid in the dead of winter. It would be impossible to imagine anything more pretty and graceful than many of the ornamental Grasses. They are exquisite, and add artistic finish to arrangements composed of the choicest flowers. Some seasons we have gathered many natural Grasses in the fields and moors, and when dried they were very useful for mixing with cut flowers generally in winter; but graceful as many of the wild Grasses undoubtedly are, many of the ornamental ones which are offered by seedsmen surpass them. They are sometimes sold in "collections," but varieties of no particularly ornamental character are apt to slip into these, and to make sure of growing none but the best each sort should be ordered separately. The following are the choicest varieties:—*Agrostis nebulosa*, *Anthoxanthum gracile*, *Briza gracilis*, *Chloris radiata*, *Coix lachryma*, *Eragrostis elegans*, *Eulalia japonica zebrina*, *Hordeum jubatum*, *Panicum capillare*, *P. virgatum*, *Paspalum elegans*, *Stipa pennata*, *Tricuspis acuminata*, and *Uniola latifolia*.

The whole of these may be raised from seed, and they will all produce their ornamental heads before the autumn. In cold districts it would pay to sow a few 4-inch or 5-inch pots of each early in March, rear them in a cold frame and plant out early in May, but as a rule they can be cultivated to perfection without this labour. If the seed is sown in the open ground early in April the plants will soon appear and grow freely. Some make a practice of sowing them in patches in mixed flower borders, and very effective they are in

such positions; but when they are cultivated mainly with the object of securing the heads for winter decoration they need not be confined to flower beds or borders, but each may be sown in rows in any corner in the kitchen garden. I have generally found them do better when treated in this way than the mixed style, as in the latter case they are always liable to be overshadowed by other plants which may be taller.

They develop best in good soil, and to insure their colouring well in the autumn they should be sown where they are exposed to the sun. It is not necessary to sow the seed thick, and if covered about half an inch they will always thrive well. It is advantageous to get them to start freely, and to assist in this we generally cover the seeds with old sandy and rich soil from the potting shed.

Respecting the Everlasting Flowers, they are very suitable for associating with the Grasses, and as with these we prefer growing them by themselves when the object is to get a special lot of fine flowers for winter use. This, however, is not a hard-and-fast rule in their culture, and large quantities of excellent flowers may be grown in the mixed border by sowing a small patch of seed here and there. They may be sown at the same time as the Grasses, and will succeed under the same treatment in every respect. The early raising of plants in pots will also be found to be a remunerative practice in cold backward localities, as although the plants undoubtedly will grow freely enough in summer, the advantage gained by sowing early or under glass is that the flowers will form during the best of the summer weather, and can be harvested before any had weather in autumn disfigures them.

*Rhodanthe Manglesii alba nana* is a new Everlasting, recently introduced by Messrs. Carter, of great beauty and usefulness. This variety is very dwarf, blooms profusely, and is of a charming silvery white colour. *Acroclinium roseum* and *A. album* should be in all groups of Everlastings. Other fine varieties are *Ammobium alatum*, *Morna elegans*, *Palafoxia Hookeriana*, *Waitzias* in variety, and *Helichrysums* of many colours. The latter are very hardy, strong-growing, free-flowering, and the blossoms are rose, scarlet, crimson, yellow, purple, white, and other shades.—J. M.

## NOTES FROM WORTLEY.

THE gardens at Wortley Hall, near Sheffield, are known by repute throughout the kingdom, and gardeners always expect to hear of something either good, novel, or surprising therefrom.

Mr. Simpson, for many years head gardener (and now gardener and forester), is so well known as a practical horticulturist that a visit to the gardens under his charge must necessarily result in benefit to the visitor. As the ground out of doors at the time these notes were made was covered with ice and snow, our attention is confined exclusively to the numerous glass structures. The first structure we entered was the late vinery, in which are hanging numerous bunches of average sized, well ripened bunches of the usual varieties of late black Grapes, but the object of special interest here is the *Gros Guillaume* Vine, which was prominently before the public some years ago as the pioneer of a new system in Grape culture. As the matter was well discussed at the time, I shall only say that the Vine is now in capital condition and promises to bear a heavy crop of fruit next season, and the stem now is 50 feet long, 20 feet having been cut off in order to make room for other varieties. In a greenhouse is a fine plant of *Acacia Riceana* trained under one of the rafters, and shortly its gracefully pendant shoots will be covered with flowers. This is a plant that ought to be more generally grown. Two plants of *Gloire de Dijon* and *Chestnut Hybrid* Roses will soon be covered with hundreds of sweet flowers. In an adjoining house is a good collection of *Vandas*, *Cattleyas*, *Lælias*, and *Dendrobiums*; the *Vandas* were specially robust, and amongst the *Dendrobes* were *D. chrysotoxum* and *D. Wardianum* that had been subjected to the pruning system, and neither showed signs of deterioration, but appeared to be equally as robust as those that are not subjected to such treatment. The next house is a vinery planted with young Vines, and these, instead of being planted at the front of the house in the orthodox way, are planted along the middle of the inside horder at distances of about 18 inches apart, and Mr. Simpson intends to train every alternate cane down towards the front of the house, thus obtaining the greatest amount of fruiting space possible, and at the same time allowing ample room for the free development of laterals and foliage. These Vines were planted from eyes last July, and duly reached the top of the house. They will be pruned back only as far as the perfectly ripened wood, and will be allowed to carry several bunches each. In strength they are not sensational, but are of short-jointed and medium-sized solid wood. As a crop of fruit was taken out of this house early last summer it will at once be seen that the vinery has been rejuvenated with fruitful Vines without the loss of a single season. The next vinery is about to undergo the same operation, but at present it contains some fine three-year-old Vines in pots. These were fruited last year, and Mr. Simpson says produced very good crops. They have evidently been well cared for, and will undoubtedly produce, during the present season, a satisfactory crop of good serviceable fruit.

Entering a span-roofed range in three divisions we observed a quantity of *Nicotiana affinis* in flower, the white sweet-scented blossoms being very abundant, and coming in at this season of the year they are doubly valuable. In the warmer division a good effect is produced by the tasteful arrangement of *Crotons*, *Thyracanthus rutilans*, and *Begonias*, all healthy and grown specially for house decoration. Particularly noticeable in the same house was a plant of *Allamanda Schottii* trained in parallel lines horizontally and laterally, a wonderful example of the rapid growth of this gorgeous trailer; and *Ipomœa Horsfalliæ*, trained from one end of



the house to the other in horizontal and vertical lines under the ridge of the house, was a specimen of successful culture rarely seen; it was planted last July. This plant is very liable to the attacks of red spider, and consequently it is seldom seen in good condition, because, as it is invariably grown against the glass and over other plants, it is liable to be neglected, and thus the red spider very often gets a good foothold before it is observed. It is a pity the flowers of the *Ipomoea* are so very short-lived, as the form of its flowers, with their delicate texture and soft rosy magenta tint, render it one of the most desirable of our stove climbers. A good specimen of *Diosma fragrans* was in flower in one corner of the house devoted to greenhouse plants. This is an old-fashioned plant, too much neglected at the present day, along with others of the same natural order. Why are not the *Correas*, *Croweas*, *Eriostemons*, *Boronia*s, and *Choisya ternata* seen more frequently in our conservatories and greenhouses? I fear gardeners are not entirely free from the charge of neglecting these plants.

In pits heated by hot-water pipes plants for bedding out are grown in thousands. *Pelargoniums* are potted out of the beds and kept through the winter, cuttings being taken from them in spring. No doubt this is a good system to follow in high and cold situations, as it is generally late in the season before the beds are so dense with growth as to admit of many cuttings being taken without the beauty of the beds being destroyed for the season—at least, such is my experience, and there is invariably a large per-centage of failures amongst cuttings taken so late. The *Pelargoniums* at Wortley are now most luxuriant and ready to furnish a superabundance of good cuttings.

Amongst the Figs in pots was a variety Mr. Simpson speaks highly of. It appears he was much struck with the heaps of large luscious fruit of a particular variety which he saw in Paris in 1878. This variety, he says, is twice the size of Brown Turkey and equally as prolific, and certainly that is saying a great deal for it. If I caught the name correctly it is called "*Daphne d'Argenteuil*."

The trees in the early Peach house were in full flower and presented a beautiful sight. Two trees occupy the whole front of the house. These were originally "riders" on stems about 5 feet high, but they have been turned into "dwarfs" by replanting them with their stems forming an angle of 15° or 20° with the ground line. This is a hint for those who would like to turn "riders" into "dwarfs" but do not know "how to do it." The kinds grown are Royal George Peach and Victoria Nectarine.

The early vinery was showing fruit in abundance; the laterals strong and foliage of good size and substance, altogether being in such condition as one expects to see them in the hands of such a master of the art. On the floor of this house were a number of pots of French Beans, Oshorn's Forcing being a favourite.

On back shelves in another house was a quantity of Black Prince Strawberries coming into flower, that variety and Viscomtesse Hericart de Thury constituting the bulk of what are grown in pots at Wortley, and for all-round work and purposes certainly the Viscomtesse is difficult to surpass. *Lapagerias* are well grown at Wortley, having a span-roofed structure standing north and south for their accommodation. Shoots like *Asparagus* are again making their appearance, and next summer and autumn will produce their clusters of waxy-white and crimson-coloured bell-shaped flowers. The principal plant more resembles (about the base) a bundle of faggots than ought else, so abundant and thick are the shoots.

In the cool Orchid house *Coelogynes* were in strong force and in full flower. One variety appears to be more floriferous than another which has darker green leaves and pseudo-bulbs, but for intrinsic beauty, as they appear to the eye, the darker-hued one is the most preferable in my opinion.

The lovely pearly-white *Odontoglossum pulchellum* was flowering very freely, and *O. Alexandre* was there in quantity, as well as varieties of *Cypripedium*s.—J. UDALÉ.



#### KITCHEN GARDEN.

THE weather is still cold, and it will be a late spring. The dry condition of the soil has lately induced us to sow or plant several early crops, but there is no warmth in the soil, and probably the crops put in during March may in every way excel those planted in February. March, however, is a kitchen gardening month, and we must now be prepared to work on every favourable opportunity.

**EARLY CARROTS.**—Many of our readers who have no frames or glass protection to use in getting up their first crop of Carrots will be eager to sow as soon as possible in the open, and this may be done any time now. Carrot seed, and the young plants as well, are very hardy, and if sown in light well-drained soil they will stand much severe weather without injury. We have always sown our early Carrots by the end of February or during the first week in March, and we never knew them to fail through being sown too early. The ground for their reception should be deeply dug and broken. A little lime or soot should be dug in, but no manure of a rough character. When the soil is not rich enough from previous manuring, we prefer artificial manure, strewing a little guano

along each side of the rows as soon as the plants are thinned. This is an excellent stimulant, and it also helps greatly to keep the grub off. The rows should be 16 inches apart, and the drills about 1½ inch deep. It is a good plan to place some old sandy soil over the seed, and when all has been completed a roller should be taken over the surface, as Carrots delight in a firm soil. We are always very particular in sowing the Carrot crop in question, as we find the roots from this crop useful until quite late in autumn. The French Horn is the earliest, then comes the English Horn, which is larger, and both should be sown now.

**RADISH.**—The first week in March always finds us sowing our earliest Radish in the open, and sowing may now be general. Wood's Early Frame and French Breakfast are two of the best to sow at this time. A small bed a few feet square will furnish a great many roots, and more need not be sown at present. The ground should be light and not too rich. When spring Radishes are sown on very rich ground they are sure to make more top growth and smaller roots than they ought to. Sow the seed thinly broadcast, and covered to a depth of half an inch. Small birds are very fond of Radish seed, and it is advisable to place a few wood hoops over the bed, covering with netting. All small seeds may be treated in this way.

**TURNIPS.**—Early Milan is the earliest variety by many days, and it alone should be sown as a first crop. There is very little use in attempting to sow Turnips in February, but we begin as soon as March is in, and although those sown now will flower before very large roots are formed, they will produce sweet little roots for a short time. Only a row or two need be sown now, and the quantity may be increased fortnightly. The soil must be moderately rich, and the rows about 18 inches apart. A few short rows on a south border will be found more satisfactory than any out in the open quarters. Sow thinly, and when the soil is dry.

**PEAS.**—Dust those above ground frequently with soot or lime; stake them as they come through the soil, especially in windy positions, as they will benefit by protection. A general sowing of those sorts which are to bear by the end of June and during July should now be made. Wrinkled varieties which are apt to decay in damp cold soil in the early part of the year may now be sown freely. Practise the trench system from this time onwards. Throw the soil out to the depth of 18 inches and about the same in width, then place a layer of manure to the depth of 5 inches or 6 inches at the bottom; put a layer of soil over this, sow the seed, and finish off by placing 2 inches more soil on the top of the Peas. After this, no matter how hot and dry the weather in summer may be, the Peas will continue growing and bearing abundance of fresh pods and tender green Peas. Nothing detracts more from the flavour of Peas than dryness at the root, and deep sowing is the only way to guard against this. When trench Peas are earthed up this is simply done by levelling in the soil along the edges, and when this is completed the roots will be so far below the surface that no ordinary amount of drought will injure them in the slightest. Telegraph, Pride of the Market, and Stratsgem are three splendid main crop Peas. They are all excellent for exhibition. Champion of England and Veitch's Perfection are two more of exquisite flavour, and they should also be sown in March. Do not be in a hurry to plant out Peas which have been raised under glass, as the weather is not in their favour yet. Indoor sowing is only advantageous when transplanting is done successfully.

**POTATO PLANTING.**—Early varieties of the Ashleaf type may be planted on south borders, but no choice varieties should be trusted out yet. If the ground has been dug over before it will be nothing the worse of being turned over again, and planting may be done as digging goes on. Keep the rows from 20 inches to 2 feet apart, and from 1 foot to 16 inches from set to set. If the soil is friable and good a little artificial manure will benefit the crop, but where the soil is heavy and stiff a liberal introduction of leaf soil or any old refuse will be advantageous. No attempt should be made to plant the whole of the early crop for another fortnight or more, and those planted now should just be sufficient to keep the supply going after those planted in sheltered places lately are finished. Admit plenty of air to Potatoes now swelling in frames. Water sparingly, and take the lights off when the sun shines briskly.

**TOMATOES.**—Where plants are wanted for turning out in May sow Laxton's open air variety at once. It is excellent for open air culture. Pot young seedlings. Never allow them to become crowded or root-bound while young. Keep plants coming into flower full in the light. Give them plenty of liquid manure, but do not be too free with the syringe. First-rate early crops may be obtained from plants in 10-inch pots, and those which are growing freely should be put into this size as soon as possible. Our earliest plants this spring are those taken off as cuttings and rooted last October. They surpassed the seedlings. A first sowing of many vegetables may now take place. The main crop of Brussels Sprouts should be put in, early and late Cauliflower, Cabbage, and Leeks. We fork up one of the narrow borders near the walk in the kitchen garden, open drills across, and sow the whole of these together. The rows are about 1 foot apart, and the plants are drawn from these and put into their main quarters. Unless Brussels Sprouts have a long season they will never develop fine and abundant sprouts. Spread out the general stock of seed Potatoes, and let them have plenty of light. Look over stored Carrots and Beetroot; remove decayed roots, and break off any young growths which may have formed.

#### FRUIT FORCING.

**PEACHES AND NECTARINES.**—*Early Houses.*—As the trees have been brought forward almost entirely under the influence of fire heat, red spider will soon appear on those near to the hot-water pipes, and as this



is the worst insect we have to deal with in this department, the syringe must be vigorously applied until the pest is destroyed. Dryness at the roots and a dry atmosphere are favourable to its spreading rapidly, whilst the check to the trees consequent on its attacks is often the cause of the young fruit falling off. As an aid to the syringe every part of the border inside should be well mulched with short horse manure, and thoroughly soaked with tepid water a few degrees above the mean temperature of the house. Proceed with disbudding, thinning, and tying in the young shoots from the lower parts of the bearing wood, and pinch back where it is thought desirable to form spurs. Ventilate early and gradually as the temperature rises, reducing it by degrees, and endeavour to make up for lost time by running it up to 80° with sun heat and moisture after closing for the day. A night temperature of 55° to 60°, according to the condition of the weather, until after the stoning process is over, will be quite safe. The day temperature from fire heat should range from 60° to 65°, and 70° to 75° with sun.

**Succession Houses.**—Trees now in bloom may have a free circulation of air, with just sufficient fire heat to prevent sudden depressions of temperature, maintaining 50° at night, and a few degrees less on cold nights. A temperature of 50° to 55° will be suitable in the daytime, advancing to 60° or 65° from sun heat, with a free circulation of air. Shake the trellis frequently, pass the camel's-hair brush or feather over the flowers once a day, and give extra attention to the shy-setting varieties by conveying pollen from others that produce it in abundance, as for instance Royal George. Keep the paths well damped on fine days, and be more sparing of water when the weather is dull and cold.

**Late Houses.**—Retard the blossoming in houses inefficiently heated by abundant ventilation with a view to escape injury from spring frosts. Keep a keen eye on the borders; have them mulched and moist. Lack of water at the roots early in the season is the cause of many failures in the culture of Peaches.

**CUCUMBERS.**—Tying, stopping, and thinning the shoots should be regularly attended to, and all superfluous and misshapen fruits removed. Plants in full bearing will require liberal supplies of tepid liquid manure. Syringe the plants twice a day in bright weather, which will keep red spider and fly in check, and close the house with plenty of atmospheric moisture at 2 to 3 P.M. Keep the evaporating troughs filled with liquid manure, the ammonia vapour being beneficial to the plants and inimical to insects. Young plants now making vigorous growth, and having been stopped previously on reaching the third wire of the trellis will need to have the growths trained regularly and not too closely over the trellis. Add some more soil to the hillocks as the roots push through the soil, repeating until the allotted space has been filled. See that the linings of dung-heated frames or pits are duly attended to, having a quantity of fermenting material in reserve for application as needed.

**MELONS.**—Occasional glimpses of sunshine with which we have lately been favoured have helped the Melons wonderfully, the plants making satisfactory progress. Nevertheless, every effort must be made to compensate for lost time through cold and the long absence of sun by making the best use of bright sunny days for entrapping the sunbeams by early closing, and affording a congenial condition of the atmosphere by damping available surfaces or syringing the plants. The plants growing in hot-water-heated pits over dung beds, and which have been stopped at the third leaf some time back, will now have made some laterals, about four of which should be trained over the surface of the bed, and stopped when they have made about 18 inches to 2 feet of growth, or when they are about 1 foot from the sides of the pit, which will result in the pushing of sub-laterals or fruit-bearing shoots that may be stopped at one joint beyond the fruit, after which, with the necessary stopping and thinning of the shoots, the plants may be allowed to furnish the allotted space. Fertilise the blossoms on fine days when the pollen is dry, and maintain, as far as practicable, a rather dry atmosphere whilst the plants are in that stage of growth, and until the fruit is set. When the plants in the Melon house have reached the fourth wire of the trellis they must be stopped, and the shoots trained horizontally to the wires. Earth up any young plants that may require it, and shift into larger pots before they become root-bound, or plant out before that condition is reached. Successional sowings and plantings must be made according to the requirements of the establishment in order to maintain a succession equal to the demand.

**FIGS—Earliest Forced Trees in Pots.**—The first swelling of the fruits will soon be completed, when they will remain apparently stationary for a considerable time; and as this is the most critical stage in their culture every care must be taken not to give a check, whether caused by excessive heat or want of moisture will, in all probability, cause them to drop when the time arrives for them to commence their last swelling. Should the weather prove mild the temperature may be kept at 60° to 65° at night, but if cold 5° less will be found safer. What is lost at night may be gained in the daytime by closing with plenty of heat and moisture, when a rise of 10° to 15° may be indulged in without producing a weak or elongated growth, keeping through the day with gleams of sun at 70° to 75°. Copious syringing on all favourable occasions will be absolutely necessary, as red spider is almost sure to attack the leaves in close proximity to the pipes. It is very important that a steady supply of tepid liquid be afforded the roots, as Figs in full growth require generous support, providing it does not remain stagnant, which can hardly happen when the pots are stood on brick piers well above the floor of the pits.

**Succession Houses.**—Attention to thinning and disbudding must be given if there is any probability of the growths becoming crowded, stopping at the fourth or fifth leaf if it be thought desirable to form spurs, from which the second crop of fruit will be obtained. Syringe the trees twice

a day, and keep the mulching constantly moistened with diluted liquid manure.

**Young Trees in Pots.**—Shift those intended for next year's forcing, and place them in or over bottom heat. Shade slightly from bright sunshine for a few days until they show signs of having taken to the new soil, when they should be fully exposed to sun and light.

#### PLANT HOUSES.

**Nepenthes.**—Plants that have grown tall and ceased to pitcher freely should be cut down to within 4 or 5 inches of the base. If done at once they will soon break into growth, and before the season is over will be well furnished and pitcher freely during the autumn and winter. It is a mistake to allow these plants to run up until they become pitcherless, for if pinched from time to time when growth has been made a few inches long they will continue growing and pitching for years without being cut back. By this means a regular supply of pitchers is secured the whole year round, and large specimen plants are the result. Plants grown on the pinching system, or young ones that need larger baskets, should be placed in them at once. The whole of the old ball must be carefully lifted out of the one in which it is growing and placed into the larger one without disturbing the roots. Previous to this the baskets should be liberally drained and a layer of the compost placed at the base; the remaining space should be filled with peat fibre and charcoal, and the surface covered with a layer of sphagnum moss in a living state. These plants will grow well in loam, charcoal and sand, sphagnum moss and peat in equal proportions, but after trying these and other mixtures the one advised above is preferred for its lasting qualities. These plants should be liberally syringed and never allowed to suffer by an insufficient supply of water. If necessary to increase the stock of these plants the stems from those cut down should be cut into lengths, two joints for each cutting being sufficient. Insert these singly in 3-inch pots filled with sphagnum moss and a little coarse sand for the base of the cutting to rest upon. The top of the cutting only should be left out of the moss, then watered and plunged in brisk heat and covered with a handlight. It is necessary to keep them airtight until they are rooted. The stems cut into lengths root freely, but the greatest difficulty will be experienced in hardening them to bear full exposure in the atmosphere of the house in which they are to be grown.

**Bertolonias.**—These are charming foliage plants when well grown, but to do them full justice they require to be kept in a case or covered with bell-glasses in the house in which they are grown. This, however, is only necessary when a liberal system of ventilating is practised. They stand exposure well in a close moist shady house where the ventilators are seldom opened. To have them in the best condition cut them over at the present time, and the heads or side shoots may be rooted singly in small pots. The cuttings root quickly in the propagating frame or under bell-glasses if shaded from the sun and kept in brisk heat. They should be inserted in sphagnum moss and sand; to this peat fibre may be added after the plants are rooted and need larger pots. After the plants are re-rooted, with good treatment they will grow rapidly and develop large beautiful leaves. The old plants from which the head or cuttings have been taken will break again into growth, and very often make very fine plants if they are potted deeply, so that the young shoots can root out of their stem and thus become independent of the old stool.

**Sonerilas.**—Charming small-growing stove foliage plants. To have these in the best condition through the summer all the growing shoots should now be taken off and rooted. The cuttings of these plants root very well under the same conditions as Bertolonias, only they should be inserted in sand, as they can be lifted out more easily than when a mixture of moss and sand is employed. When rooted pans can be filled with the compost advised for Bertolonias, raising it well above their rims, and the young plants should be planted over the surface of the pan about 1 inch apart. These must be kept close for a time until they are established, and then gradually exposed in the stove. By this treatment the whole pan is furnished in a very short time, and very few small-growing plants are more beautiful.

**Fittonias.**—These plants are very useful and very few are more effective when used in association with mosses for furnishing the outer edge of baskets or large vases used for room decoration. These strike easily in a close propagating frame, and when rooted may be grown in any light open compost in boxes or pans and lifted out when desired. They certainly last longer if established in small pots and plunged in boxes amongst sand or moss to prevent them drying. Well-furnished pans well elevated in the centre are very pleasing in the stove during the summer.

#### THE FLOWER GARDEN AND PLEASURE GROUND.

**PROPAGATING BEDDING PLANTS.**—**Solanums.**—These are almost indispensable in the sub-tropical garden, beds filled principally with one of such handsome, bold-foliaged sorts as *S. robustum*, *S. Warscewiczii*, *S. giganteum*, *S. marginatum*, and *S. pyracanthum* rarely failing to attract admiration. All are raised from seed, and as they are slow-growing the seed should be sown at once in order to have them sufficiently large to be effective when first planted out. The seed may be sown in pans or pots filled with light sandy soil, lightly covered with a little fine soil, and then stood on or plunged in a fairly brisk bottom heat, covering closely with glass till the seedlings appear, when it must be removed, and the plants be encouraged to grow sturdy. When large enough to handle rather more than the requisite number may be potted singly into 2½-inch pots, or they may be pricked off thinly in pans of light and fairly good soil, potting them off singly before they become crowded. They must be still be kept growing in a fairly warm house, being given a final shift into 6-inch pots



before they become badly root-bound, giving them fairly rich loamy soil. During May they are best kept in a cool house or frames, an early exposure to our trying climate having the effect of stunting their growth, and from this they do not readily recover.

*Wigandia caracasana*.—This noble sub-tropical plant in its earlier stages of growth is slower even than the Solanums. The seed is very small, and should therefore be sown on the sandy surface of a pan of fine light soil, plunging this in hotbed, shading heavily, and moistening the surface very carefully till such times as the seeds are germinated. The seedlings when quite small, or before they are large enough to handle, must be pricked out in a pan of fine soil, this being easily managed with the fine point of a dibble, and they will require good attention in the way of shading and gentle waterings. Later on they may be treated similarly to the Solanums.

*Eucalyptus globulus*.—Now is a good time to sow seed of this tall-growing and fairly ornamental sub-tropical plant. Sown in pans or pots of light sandy soil, and plunged in heat or merely stood in a forcing house, covering with glass, shading from bright sunshine, and kept uniformly moist, the seed soon germinates, the subsequent treatment being the same as recommended for the Solanums. Any plants that may have been kept in small pots through the winter should be given a liberal shift, good loamy soil being used, and this will be the means of much improving their size and appearance before they are wanted for the flower garden.

*Acacia lophantha*.—Although not particularly handsome this is still a favourite green-foliaged plant with many decorators, being both available for planting or plunging in the mixed beds, and subsequently for conservatory and house decoration. It is raised from seed, and as these are very hard they should be soaked in warm water for several hours, or till such time as they have swollen considerably. Then if placed singly into small pots filled with warmed soil, plunged in a brisk bottom heat, and soaked with water of the same temperature as the hotbed, the seeds germinate in a few days. When growing strongly they should be given a liberal shift, and be transferred to a greenhouse before they are drawn and weakened. For large beds last year's plants are best. Any fairly rich soil will grow them well.

*Ferdinandia eminens*.—This is a tall-growing and highly ornamental sub-tropical plant, and very effective in masses. They may be raised from seed, and otherwise treated similarly to the Solanums; or if there are any stock plants short lengths of firm wood will strike readily in heat, and soon grow to a good size if kept well attended to.

*Polymnia grandis*.—A few plants of these are usually kept through the winter, the stems being cut into short lengths and struck in heat. If duly potted and given a liberal shift, using a fairly rich loamy compost, the plants soon attain a useful size, and if finally planted in good soil they will grow 6 feet or more in height, and a mass of them are very imposing.

*Ficus elastica*.—Where tops of these are available they may be struck to a length, say, of about 12 inches, without the loss of the leaves, and later on they will be found very useful in the flower garden. These long pieces are most surely rooted by notching or cutting them half through, binding moss round the wound, and if they are then placed in heat and the moss kept regularly moistened, roots will soon be emitted into it, and these rooted tops can then be severed and potted safely. We have also frequently succeeded in striking the tops and side branches with a heel attached in a brisk bottom heat with the loss of but few leaves. Short lengths of firm wood with a leaf attached, also strike readily in heat, but if put in at the present time the plants resulting would be of no service in the flower garden this season.

## THE BEE-KEEPER.

### REVERSIBLE FRAMES.

SHALL I adopt reversible frames? This is a question which has no doubt been asked by most bee-keepers who use moveable frames of any description, and not a few of them have, it is to be feared, answered somewhat too hastily in the affirmative. A few weeks ago in talking to a bee-keeper who has upwards of a score of stocks, the majority in moveable frame hives, I asked him whether it was his intention to adopt the reversible frame, and he answered "No! it is against Nature to reverse the inclination of the cells." Now it does not seem to me of any material importance whether a given practice is against Nature or not, so that we fully realise the responsibility which attaches to ourselves immediately that we upset the arrangements of Nature. If we interfere we do so knowing that if failure follows our efforts we alone are to blame for unwisely interfering in the internal economy of the hive; if we succeed we have our reward in increased profit and pleasure. We may, therefore, consider this reply to be altogether beside the question, and may discuss the reversing theory from a more practical point of view.

It is well known amongst bee-keepers of any experience that bees always store their honey at the top of the comb, leaving the more central and lower parts free to a great extent from honey for the use of the brood. Now this is apparently considered by many an objectionable habit, because the size of the brood nest is seriously diminished, and honey is stored in the body hive—from which it cannot be taken in a form fit for sale as comb honey—instead of in the supers placed ready to receive it. Here is the opportunity for reversing, and this being done the bees, strong in their determination not to have the honey at the lower extremity of the comb, at once set to work to remove it and place it in its proper position above the brood nest; but as the cells at the top of the comb are occupied with eggs and brood in all stages of development, there is no room for the honey, which is therefore carried and placed in the supers. For a day or two after the manipulation extraordinary progress is made in the supers, and the apiarian begins to congratulate himself upon the success of his experiment, but suddenly a partial stoppage takes place, and honey comes in more slowly than previous to the operation.

Now if we consider what has taken place this will not cause any surprise, because a quantity of honey being stored in the hive a removal takes place, and this is done more speedily than when the flowers have to be visited and fresh honey gathered; this continues until the supply in the body hive is exhausted, when, as a natural result, honey comes in more slowly than ever, because more bees are required to stay at home to "set the house in order" after the strange disarrangement. The cells are often pared down to the midrib, or at least their inclination altered, and all this entails a vast amount of exhaustive toil on the worker bees, which are thereby unable to go forth to the fields and gather honey in their wonted number. In reality to get, say, ten pounds removed from the body hive to the supers, we lose five, which at least might have been got from the fields without difficulty if the bees had not been engaged at home. Surely a roundabout way of getting profit! There is one good result from the manipulation, but it is only temporary, and constant reversing must take place to render it of continued use—the brood nest is enlarged so that the queen is given more room for egg-laying, and the population of the hive is to some extent increased, and the desire to swarm diminished; but no sooner does the brood hatch from the top parts of the comb than the cells are again filled with honey, thus again necessitating the reversing process if lasting benefit is to accrue from its adoption. If, however, there is this necessity for artificially—may I say—enlarging the brood nest, one of two things is apparent, either the supering management is faulty, or the capacity of the hive is too little. But let me give the nett result from this reversing of combs, which appears to be that a temporarily enlarged brood nest is obtained, that a great amount of unnecessary labour is imposed upon the bees, and instead of getting 10 lbs. of honey in the super and 10 lbs. in the hive, we get 10 lbs. in the super, and much less than that amount in the hive itself, probably only half at the outside.

In the case of skeps, however, there is one other advantage which accrues from reversing the hive itself, and this is that a much larger surface is available for supering purposes and this is a decided advantage, for the ordinary 4-inch hole causes no little inconvenience when the hives and supers are crowded with bees all eager to work, but the hive being reversed the whole breadth of the comb lies ready for the super, but even to gain this advantage I should hesitate to adopt the practice. On the whole then, reversible frames are, as far as I am able to judge, of very doubtful utility, and should only be adopted on a small scale by way of experiment, when, if the result is, as I anticipate, unfavourable, no great loss will be occasioned, while if favourable they can another year be more extensively adopted.

There is one other improvement upon the above idea to



which I may briefly call attention, as by this plan one of the objections urged against the reversing principle is obviated. It appears to me to be greatly superior, both in principle and practice, to the other more troublesome and time-losing manipulation. In order to give some idea of the plan I will take the Stewarton hive as being the one which lends itself most easily to the adoption of honey and brood-displacement. Its principal use will be at the end of the honey flow, and at no other time ought it to be attempted, when a super is unfinished, and there appears to be no prospect of its being completed in the natural way. Suppose, then, the honey flow being over, we have a Stewarton hive composed of three body boxes and a super not complete enough for removal. We first ascertain if the top body box contains honey sufficient for our purpose, and if so we remove it and place it without reversing it beneath the other two boxes; the brood nest will thus be at the top and the honey below, with the result that the latter will be carried into the super, which will thus be completed without entailing any great labour upon the bees, such as cutting down the cells and building them up again, thus doing away with a great amount of exhausting labour, and with this additional advantage, that the bees are not kept at home when they might be gathering in the fields. This is a suggestion only, and must be tried as an experiment with the sole endeavour to get unfinished supers completed. In the course of the present season experiments with reversible frames on a large scale will be made, and a means will thus be afforded us of gauging their practical value. At present my verdict must—after getting information from every available source—be, that they are of very uncertain utility, and not likely ever to come into general use amongst practical apiarians. There are always, however, certain bee-keepers who love novelty, and are ever ready to adopt the latest so-called improvements, only to discard them again, and return to proved and valuable appliances. No displacement of the relative positions of the honey and brood will come into practice in all probability, but on exceptional occasions it may be advantageous to effect such displacement when it can be done without reversing the combs. Reversing of combs will, in a few years, be entombed with many other inventions of a like nature, and will be remembered only as a glaring instance of the strange infatuation which possesses a not inconsiderable section of the bee-keepers of the present day.—FELIX.

#### BEE NOTES.

**BALLOTING FOR HIVES AT COUNTY BEE-KEEPERS' MEETINGS.**—At the annual meeting of the Worcestershire Bee-Keepers' Association, held at the Guildhall, Worcester, on the 20th inst., Mr. J. Hiam, Astwood Bank, was fortunate enough to win one of three bar-frame hives allotted to the members annually. As there are 266 members, only a few of whom have had hives, the chances are about eighty-five to one; or, to put it another way, if we all live eighty-five years longer, and there are as many members and the same quantity of hives distributed annually, we should be entitled at the end of another eighty-five years to another chance. Not long to wait!

**TOMTITS v. BEES.**—Before any replies are sent in answer to "G. H. P.," page 162, let us be clear as to the bird referred to. From the description of the habits of the bird and from the remark, "the black-headed tomtit," I have no doubt that "G. H. P." refers to what is locally known here as the "Tom Collier," or ox-eye (*Parus major*). I am well aware that these are particularly fond of bees, and have often watched them pick up stray bees and pull them to pieces, and pick out the dainty morsels from the inside of the bees, discarding the wings, legs, and outside. But this much I can safely say, that I have never seen them kill my bees, although I will not say that they do not. The bird I referred to, and which there could be no mistake about, as I had one at the meeting referred to, which was shown in his little domicile purposely provided for him, where he sleeps every night, going about his business during the day, was the bluetit (*Parus caeruleus*), which is always understood as the tomtit in this locality, and by reference to many books. If I used the word "harmless," it was with reference to killing bees. I know they have a decided relish for many kinds of fruit, and the worst of it is, with Apples and Pears, they like to taste too many; it would not matter if they would stick to one and finish it. On the other hand, they are of immense value in destroying caterpillars, aphides, scale, red spider, &c. I could go thoroughly into this subject from observation, but it would occupy too

much space and time. Knowing their value, I encourage them. I have had exactly three dozen reared in the past three summers in an old tin teapot fixed in a Plum tree for them.—J. HIAM.

#### TRADE CATALOGUES RECEIVED.

Osman & Co., 14, Windsor Street, Bishopsgate, London, E.—*Wholesale Price List of Nurserymen, Seedsmen, and Florists' Sundries, 1886.*  
J. C. Vaughan, Chicago.—*Catalogue of Tools and Bulbs.*  
Hogg & Wood, Coldstream and Duns, N.B.—*List of Agricultural Seeds, Spring, 1886.*  
Edmund Philip Dixon, Hull.—*Farm Seed Catalogue for 1886.*  
H. Gusmus, Rosenheim, Bayern.—*List of Alpine Plants.*



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Address (R. R.).**—The Secretary of the United Horticultural Benefit Society is Mr. John F. M'Elroy, The Gardens, Moray Lodge, Campden Hill, Kensington, W.

**Specimen Glasses for Roses (*Juvenis*).**—We do not understand to what glasses you refer, nor do we see anything concerning them on the page you give. Write to the Editor of the "Rosarian's Year Book," the Rev. H. H. D'Ombraim, Westwell Vicarage, Ashford, Kent.

**Artificial Manure (C. W., Coventry).**—As we have many times stated, we cannot possibly undertake to analyse either soils or manures. The sample sent resembles phosphate of lime. Apply a portion in differing quantities to Cabbages or grass and note the results. We do not suppose that 3 ozs. to the square yard would do any harm. About that quantity we think would be good for Potatoes and most other crops, but proceed experimentally.

**Rhubarb from Seed (D. J.).**—Plants can be raised from seed quite easily by sowing in the open ground during fine weather in April. It is a good plan to sow in drills a foot apart, placing a few seeds at intervals of a foot, then when the plants appear thin them out as may be needed, allowing one to remain. These plants grow to a good size the first year, and an idea can be formed as to which are likely to be the best, there being usually considerable variation, and the worst can be removed. The others can either remain for affording produce the following year, or be taken up and planted at wider intervals for forming a permanent bed.

**Sparrows and Gooseberry Buds (G. S.).**—Undoubtedly these birds destroy the buds, and we have known bushes ruined by their attacks. Where the pests are troublesome it is a good plan not to prune till late in the spring, as we have known autumn-pruned bushes divested of every bud in the winter; but they are seldom all destroyed on unpruned bushes. Some persons use worsted, and if this is stretched from the ends of the branches so as to form a rough network, it is often, but not always, efficacious. Dusting the bushes when they are quite wet, as on a still misty day, with freshly slaked lime is an excellent bud preservative, it also keeps the branches free from moss, and the lime falling to the ground is good for the trees in most if not in all soils.

**Planting of Gladioli (*Ebor*).**—Certainly Gladioli may be grown as "far north" as where you reside, and are, in fact, splendidly grown a great deal further north—in Scotland. They are grown as well in the north as the south, if not better. The time for planting should be governed by the weather and the consideration of the soil, not by the almanack. We have planted in February in light soil in a free dry state, and in April in strong land with equal satisfaction. Any time from the middle of March to the middle of April is suitable, always taking advantage of favourable weather, when the land is dry on the surface. An article from an experienced cultivator, "D., Deal," on the culture of these beautiful but often fickle flowers, will shortly be published.

**Adiantum cardiolochlana Unhealthy (J. T. S.).**—The plant may need repotting or the drainage may be insufficient, and your best plan, if it has not been repotted for some time, will be to turn it out, removing the whole drainage and a little of the old soil, especially if it seems to be sour. Have a thoroughly clean pot of suitable size, well drain it with clean potsherds to one-third of its depth, and repot the Fern in fresh fibrous peat and a small proportion of light loam, with a liberal admixture of silver sand. Keep the plant in a close warm house for a week or two, and give only sufficient water to render the soil moist until growth is advancing. Do not let the plant be fully exposed to the sun at any time, and avoid placing water on the fronds, though a moist atmosphere is necessary.



**Peas for Use (B. L. E.).**—The question of varieties to grow is often very much a question of sticks for supporting them. A great number of varieties are not necessary for succession. A succession can be maintained by growing a few rows of many sorts, but not better than growing several rows of a few varieties. We know a gardener who sows twenty quarts of Peas annually—two of William I., fourteen of Champion of England, and four of Ne Plus Ultra. With the last sowing of the first named he sows the second, and with the last of this he sows the third. As soon as the plants of the Champion are visible he sows more rows. The succession is unailing and the produce of the first quality. His last sowing of Ne Plus Ultra in June is three or four times the extent of spring sowings, because the rows are not so productive in late autumn as in summer. He gathers Peas from the end of May till the end of November. This is very plain practice, perhaps too plain for you, but the gardener who adopts always has "Peas for use" in season.

**Market Gardening (H.).**—It is a matter requiring very careful consideration. The distance from market will tell considerably upon the proceeds of the sale, and the question will be whether it would not be cheaper to take the produce the whole distance than to take it a fourth of the whole to the railway and then have to pay carriage. This must be ascertained by a comparison of rates or cost of the two modes of transit, but as there is little means of keep for horses, we think the railway would prove the cheapest and quickest. The glass would not bring in much, as the vineries are planted with varieties that would have to be forced so as to come on early in May or June if they brought paying prices in the London market, but you might find better prices at local shops were the Grapes ripened successionally; indeed we should not expect to realise more than £50 from the glass, though you might derive some profit from growing plants. As not more than half the wall trees can be depended upon it will lower the value proportionately, and the value of the land outside will depend upon its availability for crops. Something could be made by keeping pigs no doubt, and you will need to take into consideration the facilities of procuring manures. According to the statement you give we think the rent high, especially as the fruit trees are in poor condition, and will need a considerable outlay before the wall can be made remunerative, the lease not being long enough to allow of any great improvement without compensation at its expiration. We should certainly make a calculation very carefully before committing yourself, our opinion being that £10 per acre, taking the concern as it stands, would be a sufficiently high rental under the circumstances, beyond which we should not go without there are other advantages, which do not appear to us from a careful consideration of your letter. Trade is not brisk, nor likely to be for some time, and expenses are heavy.

**What is a Pippin? (Oxon).**—We publish your postcard question, and answer it from the last edition of the "Fruit Manual." The word Pippin is derived from the French Pepin, the seed of an Apple, and in its earliest signification meant an Apple tree raised from seed in contradistinction to one raised by grafting or from cuttings. Thus Leonard Mascall, writing in 1572, says, "Then shall you cover your seedes or pepins with fine earth so sifting al over them;" and "when the winter is past and gone, and that ye see your Pepins rise and growe;" and again, "When so ever ye doe replante or change your Pepin trees from place to place, in so removing often the stocke the frute there of shall also change; but the frute which doth come of Grafting doth always kepe the forme and nature of the tree whereof he is taken." It is evident from this last quotation that Pippin is synonymous with seedling, and is used to distinguish a tree raised directly from seed from one that has been raised from grafts or cuttings. The Golden Pippin, which, by the way, was raised in Sussex, where Mascall also was born, means simply Golden Seedling. But there was another meaning attached to the word. In "Henry IV.," Shallow says to Falstaff, "Nay, you shall see mine orchard; where in an arboure we will eat a last year's Pippin of my own grafting." And this is interpreted by what Sir Paul Neile says in his "Discourse of Cider," written in the time of the Commonwealth, wherein speaking of "Pippin cider," he says, "For by that name I shall generally call all sorts of cider that is made of Apples good to eat raw," and that is evidently the signification in the above quotation from Shakespeare. Coming to more modern times, we have the word kernel, which is the English equivalent of Pepin, also used to signify a seedling Apple tree; as, for example, Ashmead's Kernel, the seedling raised by Dr. Ashmead of Gloucester; Cook's Kernel, Knott's Kernel, and many others.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (E. J. Bath).—The fungus on the leaves of the Eranthemum was examined by Dr. Cooke and determined to be a new species, which he has named Isariopsis acanthacearum. (W. R.).—The Orchid is Dendrobium luteolum, a useful winter-flowering species; see the figure on another page. It is a native of Moulmein, whence it was sent by the Rev. C. S. Parish to Messrs. Low of Clapton. (J. S.).—Cytisus filipes.

**Selling Honey (Eastern County).**—Undoubtedly your best plan would be to advertise the honey, and at a moderate price you would soon find purchasers.

#### COVENT GARDEN MARKET.—MARCH 3RD.

TRADE the same, with a good demand for forced fruits and vegetables.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	½ sieve	2 0 to 3 6	Oranges .. .. .	100	4 0 to 6 0
" Canadian ..	barrel	10 0 12 6	Peaches .. .. .	per doz.	0 0 0 0
" Nova Scotia ..	10 0	12 6	Pears, kitchen ..	dozen	1 0 1 6
Cobs, Kent .. ..	per 100 lbs.	27 6 30 0	" dessert .. ..	dozen	0 0 0 0
Figs .. .. .	dozen	0 0 0 0	Pine Apples English ..	lb.	1 0 1 6
Grapes .. .. .	lb.	2 0 6 0	Plums .. .. .	½ sieve	0 0 0 0
Lemons .. .. .	case	8 0 10 0	St. Michael Pines ..	each	2 0 6 0
Melon .. .. .	each	0 0 0 0			

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	dozen	1 0 to 0 0	Lettuce .. .. .	dozen	1 0 to 1 6
Asparagus .. ..	bundle	2 0 8 0	Mushrooms .. ..	punnet	0 6 1 0
Beans, Kidney ..	lb.	2 6 3 6	Mustard and Cress ..	punnet	0 0 0 0
Beet, Red .. .. .	dozen	1 0 2 0	Onions .. .. .	bunch	0 3 0 0
Broccoli .. .. .	bundle	0 9 1 0	Parsley .. .. .	dozen bunches	2 0 3 0
Brussels Sprouts ..	½ sieve	3 0 4 0	Parsnips .. .. .	dozen	1 0 2 0
Cabbage .. .. .	dozen	0 0 2 0	Potatoes .. .. .	cwt.	4 0 5 0
Capsicums .. ..	100	1 6 2 0	" Kidney .. .. .	cwt.	4 0 5 0
Carrots .. .. .	bunch	0 3 0 4	Rhubarb .. .. .	bundle	0 2 0 4
Cauliflowers .. ..	dozen	2 0 3 0	Salsafy .. .. .	bundle	1 0 0 0
Celery .. .. .	bundle	1 6 2 0	Scorzonera .. ..	bundle	1 6 0 0
Coleworts .. .. .	doz. bunches	2 0 4 0	Seakale .. .. .	per basket	2 0 3 0
Cucumbers .. ..	each	0 6 1 3	Shallots .. .. .	lb.	0 3 0 6
Endive .. .. .	dozen	1 0 2 0	Spinach .. .. .	bushel	6 0 8 0
Heros .. .. .	bunch	0 2 0 0	Tomatoes .. .. .	lb.	0 9 1 6
Leeks .. .. .	bunch	0 3 0 4	Turnips .. .. .	bunch	0 4 0 0

##### PLANTS IN POTS.

		s.	d.	s.	d.			s.	d.	s.	d.		
Aralia Sieboldi ..	dozen	9	0	to	18	0	Ficus elastica ..	each	1	6	to	7	0
Arbor vite (golden)	dozen	0	0	0	0	0	Ferns, in variety ..	dozen	4	0	0	18	0
„ (common)	dozen	6	0	12	0	0	Foliage Plants, var.	each	2	0	10	0	0
Arum Lilies .. ..	dozen	12	0	18	0	0	Genistas .. ..	dozen	10	0	12	0	0
Azaleas .. .. .	dozen	24	0	42	0	0	Hyacinths .. ..	dozen	6	0	9	0	0
Begonias .. .. .	dozen	0	0	0	0	0	Marguerite Daisy ..	dozen	8	0	12	0	0
Bouvardia .. ..	dozen	12	0	18	0	0	Myrtles .. .. .	dozen	6	0	12	0	0
Cineraria .. .. .	dozen	10	0	12	0	0	Palms, in var. ..	each	2	6	21	0	0
Cyclamen .. .. .	dozen	12	0	24	0	0	Pelargoniums, scarlet, doz.	6	0	9	0	0	
Cyperus .. .. .	dozen	4	0	12	0	0	Poinsettia .. ..	dozen	0	0	0	0	0
Dracæna terminalis,	dozen	30	0	60	0	0	Primulas, single, ..	dozen	4	0	6	0	0
„ viridis .. .. .	dozen	12	0	24	0	0	Solanum .. .. .	dozen	8	0	12	0	0
Erica, various ..	dozen	12	0	24	0	0	Spiræa .. .. .	dozen	12	0	18	0	0
Euonymus, in var.	dozen	6	0	18	0	0	Tulips .. .. .	12 pots	6	0	9	0	0
Evergreens, in var.	dozen	6	0	24	0	0							

##### CUT FLOWERS.

	s. d.	s. d.		s. d.	s.
Abutilons .. ..	12 bunches	2 0 to 4 0	Lilies of the Valley, in		
Acacia (Mimosa), Fr., per	bunch	1 0 1 6	clumps or pots, per doz.	15	0 to 30 0
Arum Lilies .. ..	12 blooms	4 0 6 0	Lily of the Valley, 12 sprays	0	9 1 6
Azalea .. .. .	12 sprays	0 6 1 0	Marguerites .. ..	12 bunches	6 0 8 0
Bouvardias .. ..	per bunch	0 6 1 0	Mignonette .. ..	12 bunches	3 0 6 0
Camellias .. ..	12 blooms	2 0 5 0	Pelargoniums, per 12 trusses	1	0 1 6
Carnations .. ..	12 blooms	1 0 3 0	" scarlet, 12 trusses	0	9 1 0
Chrysanthemums 12 blooms	2 0 4 0		Poinsettia .. ..	12 blooms	0 0 0 0
" 12 bunches	9 0 18 0		Roses (indoor), per dozen	3	0 9 0
Cyclamen .. doz. blooms	0 4 0 9		" Tea, French ..	dozen	2 0 4 6
Epiphyllum .. doz. blooms	0 6 0 9		" red, French ..	dozen	2 0 4 0
Eucharis .. ..	per dozen	4 0 6 0	Spiraea .. .. .	12 sprays	1 0 0 0
Gardenias .. ..	12 blooms	6 0 18 0	Tropeolum .. ..	12 bunches	2 0 3 0
Hellebore .. ..	doz. blooms	0 0 0 0	Tuberose .. ..	12 blooms	1 6 3 0
Hyacinths, Roman, 12 sprays	1 0 1 6		Tulips .. .. .	dozen blooms	0 9 1 0
Lapageria, white, 12 blooms	0 0 0 0		Violets .. .. .	12 bunches	1 0 1 6
Lapageria, red .. 12 blooms	1 0 2 0		" Czar, Fr., ..	bunch	1 6 2 0
Lilium longiflorum, 12 blms.	0 0 0 0		" Parme, French, per	bunch	4 0 6 0



#### LAMBING TIME.

FAT lambs may still be regarded as a profitable item in farming accounts, and now that lambing time is almost ended on the home farm we are making strenuous efforts to assist growth and do all we can to promote early development into a marketable commodity of as many lambs as can be spared for early fattening. At the outset this is best done by affording a liberal diet to the ewes, or, rather, it should be mentioned that the ewes are never suffered to fall into low condition, but are kept fairly sleek throughout the year. By a moderate addition of corn or cake in August we are able to manage early breeding, and remember that a ewe in poor condition is always slow and backward in breeding. Why is it that so many ewes are pressed upon the markets in such wretched plight as we saw them last autumn? No doubt the answer generally would be that, owing to the drought, pastures had become bare and flocks had suffered privation. But then we may well inquire farther, if such privation was unavoidable? What is there to debar one from trough-feeding throughout summer if need be? Sheep do not always take readily to a fresh article of diet, but we may safely take it for granted that bare pastures would soon drive them to racks or troughs, and chaff or straw



would then be eaten readily enough. For such an emergency what could we desire better than a crop of winter Oats? It is generally ripe by the second week in July, it might then be taken, and by converting the unthreshed grain into chaff with the straw, we provide a nourishing dietary to which the sheep take readily enough, and we certainly are then turning the Oat crop to profitable account.

He is a poor farmer indeed who waits till lambing time before making due provision for feeding the lambs. But it is now, while the pressure of such a considerable addition to our live stock is fully upon us, that we probably see most clearly what could be done for them, and attention may usefully be called to the matter now. During the last month or two of the period of gestation the ewes had cake and chaff in addition to grass, but they had only a few roots given them on the grass, the roots being only given by way of change, and not as the principal article of diet. We have repeatedly called attention to the mischief arising from folding pregnant ewes on roots, and we may add here the satisfactory fact that we have not had a single case of abortion this season. That abortion, to a serious extent, is caused by a diet of cold, often frozen roots, has been proved so repeatedly that one cannot but wonder at the repetition of a process that is known to be fraught with such risk. A considerable area of good sound grass pasture was held in reserve from last autumn specially for the lambing; but knowing as we did that the grass alone would not suffice for our large breeding flock, a field of large late Drumhead Cabbage was sown at the end of last April, specially to afford a supply for the flock now. These fine Cabbages have not been protected in any way, and we are happy to say that after exposure to a severe frost of several weeks duration only a few of the very forward have been spoilt. The ewes eat them greedily, and they afford a welcome addition to our favourite mixed diet. Two fields of Swedes and White Turnips have also been left out to the frost in order that green tops might be had for the flock, and no roots have sustained any harm, except some in which holes were pecked by rooks and pigeons.

Of green crops for spring folding Rye, Rye Grass, Clover, and the mixed seeds of alternate husbandry, Trifolium, Winter Tares, Sainfoin, Lucerne, and Spring Tares, all afford a rich and bountiful supply in rapid succession, and it is by the skilful culture of such crops for the flock that we are able to bring the lambs and hoggets to early maturity, and to maintain the ewes in a sound healthy condition. By systematic folding upon the land for the consumption of such crops, we also manure the land in the best and most economical manner. It has been said truly enough, that any farmer would prosper who could enrich the land effectually by the manure of live stock, making a profit of the stock and manuring the land gratis. By live stock we certainly here mean sheep, for we decidedly consider the manufacture of manure in cattle yards, and the general use of manure carts a costly and extravagant process that is only advisable for root culture.

Recently we have repeatedly had a special sort of lamb food brought to our notice, and after a careful examination of samples we have definitively decided to give it a trial. It consists of a mixture of crushed food, among which one may readily detect Peas, Beans, Oats, bran, malt, linseed, and several sorts of oilcake, and is apparently an admirable mixture of pure wholesome nourishing food, which lambs of a month old are said to begin eating freely. We can see at a glance that it must be nourishing, and if it only proves sufficiently so to accelerate the early maturity of our lambs in an appreciable degree, from a profit and loss point of view it will prove an acceptable addition to our mixed diet. Lambs, however, should be given fresh food with much caution, a small quantity at first, and a gradual increase as the young animals are able to bear it. Perhaps our best safeguard is to let them run forward on young Rye or Grass, and then careful trough-feeding corrects any tendency to scouring, and rapid growth is accompanied by a plump healthy condition.

### WORK ON THE HOME FARM.

During the last eight or nine months we have been getting a stock of sows for breeding purposes. We have managed to get together thirty useful animals, and five of them have just given us our first instalment of spring pigs, which generally prove profitable, and owing to the widespread ravages of swine fever there is likely to be a brisk sale for them. While avoiding the keeping of a large number of pigs, we certainly find a certain number a profitable investment upon all corn-growing farms; for even when corn is not spoilt by exposure to rain a certain proportion may be turned to good account among the live stock of the farm. In view of this we set apart much more land of Oats this year, and with winter and spring Oats we shall have upwards of a hundred acres. The straw and much of the grain is intended for home consumption by sheep. We have now flocks on four farms, and, notwithstanding foreign competition, they still represent a fair margin of profit, provided a very heavy outlay upon purchased food can be avoided.

Before sowing Clover pure and simple we shall do well to consider if we may not do much better to sow a mixture of strong-growing grasses with it for a two or three-years layer. If the land be clean and in good heart we may certainly do so advantageously, for by judicious folding or the application of artificial manures we may get heavy crops of fodder and effect a considerable saving of labour. This is a matter worthy of our serious attention now more than ever, the only thing in favour of a crop of Clover being the profit that may sometimes be made by the sale of the seed. It is well to let the corn be sown a week or two before the "seeds," as otherwise we are liable to have so much grass in the bottom of the sheaves that the carting and stacking is much hindered. Let especial care be taken to procure all grass seeds from a safe source in order to avoid adulteration. No time should be lost in corn-sowing as soon as the soil is sufficiently dry. An early seed time means an early harvest and an early harvest often means corn saved before rain sets in, and we certainly had this lesson well enforced last harvest. Be on the alert to begin the stirring and cleaning of foul land as early as possible, and if the land is poor avoid a bare fallow. Sow White Mustard, to be ploughed in as soon as the seed pods appear, and if the weather is favourable for a second crop of Mustard by all means sow it to be ploughed in in due course, and thus store the land with fertility in a manner at once simple, efficient, and economical.

FARMERS' CATALOGUES AND HANDBOOKS.—Messrs. Webb & Sons Farmers' Catalogue contains an interesting chapter on "Grass in Alternate Husbandry," together with a variety of information respecting the principal Grasses, illustrated by engravings of the leading useful varieties. Selections of seeds are given for the various geological formations. The Clovers, roots, Cabbages, with the cereals also receive attention, useful chapters being given on "The Field Cultivation of Cabbages" and "The Development of the Ensilage System."

Messrs. Carter & Co.'s Farmers' Handbook is of the customary useful character, and contains articles on "Permanent Pastures," "The Cloven Dodder," "Grass Land's and Dairy Farming for Profit," by Professor John Scott; "Farm Pests and their Remedies," a valuable contribution; "Successful Root Cultivation," which deals with Parsnips, Carrots, Mangolds, Swedes, Turnips, and Kohl Rabi. A few practical remarks are given on "Caraway and Flax Culture in England," "Cabbage as a Field Crop," and much miscellaneous information, with numerous illustrations, completes a very neat annual.

### OUR LETTER BOX.

Cow Swollen (R. C.).—The best answer we can give is to advise you to promptly call in a veterinary surgeon or someone familiar with the ailments of animals. A careful examination appears to be requisite for determining the most suitable treatment of the case.

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.


DATE.		9 A.M.					IN THE DAY.					Rain
1886.  February.		Baromet- ter at 32 1/2 and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min	In sun.	On grass.		
Inches.	deg.										deg.	
Sunday .....	21	30.248	32.9	31.6	N.E.	35.4	37.2	30.8	52.1	26.8	—	
Monday .....	22	30.407	32.7	31.6	N.	35.3	38.7	26.1	61.4	20.3	—	
Tuesday .....	23	30.332	31.7	31.0	N.E.	35.2	36.8	31.0	43.7	27.1	—	
Wednesday ..	24	30.180	27.9	26.8	N.E.	35.2	35.9	23.8	54.8	18.9	—	
Thursday ....	25	30.140	33.3	30.5	E.	34.8	36.2	27.4	42.4	23.8	—	
Friday .....	26	30.236	30.8	30.4	N.E.	34.6	39.7	26.7	82.6	22.1	—	
Saturday ....	27	30.290	31.4	30.9	N.E.	34.4	40.2	25.3	67.7	20.9	—	
		30.262	31.5	30.4		35.0	37.8	27.3	57.8	22.8	—	

### REMARKS.

21st.—Fair throughout, but overcast except about noon.  
22nd.—Fine, but not bright, except for a short time about midday.  
23rd.—Cloudy, with sleet, till 11 A.M., fine clear night.  
24th.—Fine, bright, and cold in morning, cloudy afternoon.  
25th.—Fine, but no sun.  
26th.—Fine and bright all day.  
27th.—Fine, with some sun.

An extremely cold week, the temperature being steadily low rather than exceptionally so on any one day. Since February 15th the temperature has only once for a few minutes reached 40°, and there has been frost on the grass every night in February except two, and on each of those the temperature was less than one degree above freezing point.—G. J. SIMONS.





## COMING EVENTS

11	TH	Royal Society at 4.30 P.M.	
12	F	Quekett Club at 8 P.M.	
13	S	Royal Botanic Society at 3.45 P.M.	
14	SUN	1st SUNDAY IN LENT.	
15	M		
16	TU	Manchester Spring Show (two days).	Logical Society at 7 P.M.
17	W	Bristol Spring Show (two days). Society of Arts at 8 P.M. Meteorological Society at 8 P.M.	

### MIDSEASON GRAPES.

**I**N some cases Grapes will be ripe in April, and in numerous instances in May, but all these must be included as early Grapes, and it is those which ripen in July and August which we regard as midseason Grapes. Throughout the best part of the season most varieties of Grapes may be depended on to ripen in five months after the Vines have been started into growth, and, taking this as a guide, it will be seen that to have Grapes ripe by the end of July the Vines must be started early in March. This is an excellent time for anyone to start their Vines into growth, more especially amateurs. Vines started in December and January require the close attention of skilled cultivators; and it is much the same when starting in February, as artificial appliances must almost be wholly depended upon, but in March, April, and onwards the days are lengthening, the sun gaining strength—natural advantages of the utmost service to the Vines, and I strongly advise all who are not thoroughly experienced to delay starting their Vines until March, and natural aids will lighten their labours and anxieties, wood, foliage, and fruit being produced of such a substantial character as would be quite impossible in the short days. If the vinery is closed now it will be three weeks before the leaves are visible, and they will just be coming out in the early days of April, when forcing is a very simple matter and may be accomplished by all.

In places where vineries are not numerous a long succession of Grapes is generally secured by planting early and late varieties together, such as the Black Hamburgh, Foster's Seedling, and Buckland Sweetwater, with Lady Downe's, Black Alicante, and Gros Colman. All these succeed admirably when started now, as the early fruit will be ripe in July, and if abundance of air is admitted at that time the late varieties are brought slowly to maturity and are thoroughly ripened in good time in the autumn. Everything considered we do not know a better time to start a vinery than the present, and the whole of our vineries will be closed for that purpose this week. At first fire heat should only be employed very sparingly, as the temperature should not exceed 60° by night when it is mild, and a few degrees less in cold nights. Throughout the day a temperature of 65° is quite high enough by artificial heat, but when the sun shines brightly 75° or 80° may be allowed.

It is a decidedly bad plan to allow the thermometer to register 80° or from that to 90° before the ventilators are opened to admit fresh air, and it is always better to ventilate to prevent the temperature rising too fast or too high than ventilate extensively to lower it suddenly. Until the leaves appear, however, ventilating is not a very important matter, but as soon as they begin to develop they are very tender and easily scorched, and the brown spots on Vine leaves, which we often hear of throughout the season, are frequently the result of careless ventilation when the leaves are forming, as

when they are burned then the spots remain the whole of the year.

The first thing requiring particular attention as soon as the vinery is closed is the watering of the roots. When the borders are inside they are, as a rule, allowed to become very dry in winter, with the object of keeping the interior of the house free from damp, and a dust-dry border is not easily moistened. It cannot be done at one watering, and to do it thoroughly it must be watered several days in succession. At first we should give a good application of clean water, to be repeated until we felt sure that the water had been absorbed by the very dry soil at the bottom; we should then follow with a copious supply of liquid manure, and place a deep layer of rich manure on the surface. In a week or so afterwards much clean water would be poured on this manure and be allowed to find its way to the roots; the Vines will then break freely all over, and form very strong shoots and substantial bunches. We have frequently had Vines pointed out to us which failed to start like the rest, and as they were generally at the warm end of the house, where their owner thought they ought to be best ripened and the first to start, their shyness in bursting into growth was very puzzling; but Vines at the hot end of houses seldom receive more water than the others, while their chances of becoming dry are greater, and an extra soaking of the border would cause them to go on right in the majority of cases.

Outside borders, unless they have been protected from the winter rain, are never dry and rarely require watering before closing the house, or, indeed, until summer, but a heavy top-dressing of manure does as much good on an outside border as an inside one, and this should be put on not later than the time the house is closed. It is almost impossible to over-feed Vines, and were they more liberally dealt with, as a rule, we would soon see them with larger foliage and finer developed fruit. A humid atmosphere is also necessary to insure the free starting and expansion of the wood, foliage, and fruit. On dull days the Vines should be syringed at least once daily, and in bright weather they should be syringed twice, about 9 A.M., and from 2 P.M. to 3 P.M. The floor of the house ought also to be kept moist, and if there are any troughs on the pipes they should be filled with water. Under these easily applied conditions it is astonishing what rapid progress Vines will make, and when the atmosphere is moist there is little danger of insects making much headway, which is a very important matter, as, if Vines become infested with insects during the early days of their growth, all hopes may be given up of securing a fine crop of fruit.—A KITCHEN GARDENER.

### LIME AND TOP-DRESSING LAWNS.

IF one thing more than another adds to the beauty of a garden through the summer months it is a perfectly green well-kept lawn. The last two summers have been exceptionally dry, and many lawns suffered in consequence. Last year we noticed lawns quite brown, while others in the same locality were green and beautiful. The cause of many lawns being browned directly dry weather sets in is due to the wretchedly poor condition of the soil. Lawns that are kept closely mown for years are certain to become exhausted if no attempt is made to improve the fertility of the ground. In many districts moss seems to luxuriate, and quickly covers the surface of the ground if not constantly stirred, and in such localities it generally takes possession of the lawns to the detriment of all the smaller and finer grasses, if it does not entirely eradicate them, which is certain to be the case if not destroyed. Impoverished lawns in this condition can be wonderfully improved in one season, and if the dressing is separated for a year or two a thorough renovation will be effected. If a rich top-dressing cannot be given lime is cheap enough in most localities, and this if freely applied will destroy moss, and grasses will spring up in its place. The lime if obtained fresh should be exposed to the atmosphere



until it falls to dust. For this purpose it is best placed in an open shed, or it may be reduced to powder by pouring as much water upon it as will just bring it to that condition.

To apply lime by itself is not one of the most enjoyable occupations, and the dust often renders trees and shrubs in close proximity unsightly for a time. Under these circumstances we always contrive to have a quantity of old potting soil that has been passed through a fine sieve under cover in readiness, and mix equal quantities of the two together. Failing this we use any ordinary fertile garden soil, and when well mixed it can be applied without creating any dust. This should be spread evenly, just covering the surface, out of the barrows as wheeled on. Select a dry day for the purpose, and when the whole has been spread it should be roughly brushed in with branches secured parallel to two poles. If this brushing is repeated a few times during dry weather, and then well rolled down, very little will be seen after the first good shower of rain. The lime for a time will certainly be visible, but by the time the grass begins to grow it will have been washed down out of sight. A good dressing of lime will destroy the moss, and before the season is over a marked improvement in the condition and appearance of the lawn will take place.

Our lawns are very subject to moss, and if they are not top-dressed about every third year it is certain to re-establish itself. We top-dress a portion annually, and by this means succeed in keeping the moss down and the lawns in presentable condition; in fact, only one of our lawns were browned last year. We have tried several mixtures, but find the following one most satisfactory. Old potting soil is reserved and passed through a fine sieve, and to every twenty barrowfuls is added two of lime, one of soot, and one of wood ashes; failing either of these, double the quantity of the soot or wood ashes is employed. To this about half a hundredweight of bone dust is added. If we have not sufficient potting soil, decayed leaf soil, old vegetable refuse of any description, or decayed manure, such as the refuse of Mushroom beds, are employed if they are in a condition to be passed quickly through the sieve. Sifting is not necessary as long as no very rough material is amongst that which it is intended to use. We sift the compost more for the sake of appearance than anything else, for when put on fine it is quickly worked down amongst the grass, and the lawn in a few weeks is presentable again. Three years ago we so treated a large lawn that was very poor, generally turned brown in summer, and was too full of moss. The second season Clover sprung up in abundance, and last season it spread through the whole of the lawn, and was beautiful and green all the season. Previous to the top-dressing I had not noticed any Clover in it. It may not be necessary to add lime for all soils, for the land may naturally contain sufficient, but for soils which contain only a very small per-centage, or next to none, lime will be found a valuable manure. This can be readily proved by giving lawns that are poor and full of moss a good dressing, for the improvement that takes place in one season is most marked, and its beneficial effects are not quickly exhausted.

Nitrate of soda is very good for strewing on lawns during showery weather in spring; it is very quick in its action but not very lasting. A good dressing will improve a lawn wonderfully in one season, and the amount of grass produced is astonishing compared with what was the case before its application. But the lawn is none the better for it the second season—such, however, has been my experience, and if I have observed rightly the lawns upon which it was used were left in a worse condition than before it was applied. I have tried several artificial manures recommended for lawns, and have always tested them by the side of bone dust. In several instances they have had the best of the bones for the first season, but in the end the bones have proved the best and most durable. We have some difficulty in making as much wood ashes as we require for various purposes, or we should use them more largely for dressing lawns, for we

have found wood ashes, being rich in potash, a very valuable fertiliser.

The best time undoubtedly to apply top-dressings to lawns is from the middle of February to the middle of March. The present is an excellent time. There is really no comparison in the appearance of a lawn that is top-dressed early in the season and one that is left until the spring has fairly advanced. When applied early it is well washed down to the roots of the plants, and directly they begin to grow their roots take possession of it, and its fertilising effects are visible from the first. But when lawns are top-dressed late in the season the material used often becomes dust dry, it remains amongst the grass in this condition for a long time, and the results that may be anticipated do not show themselves for some months—perhaps not till near the autumn. Much, however, in this matter depends upon the season, but where top dressing is required it should be delayed no later than the state of the weather will allow of it being done. To keep a lawn in good condition by periodical top-dressings does not entail much labour; in fact, most of the material employed can be prepared when it is impossible for men to do outside work, and when this has been done the work of spreading it on the lawn and brushing it in does not entail much labour. However, the better appearance of the lawn during summer more than compensates for any labour occasioned in carrying out this important work.—A NORTHERNER.

#### ESTIMATES OF VEGETABLES.

**BRUSSELS SPROUTS.**—These as a main crop are not very remunerative, but taken as an intermediate crop contribute in no small degree to the annual proceeds. Perhaps the most important of the Brassicas from a marketing point of view are Brussels Sprouts, they being taken between the rows of Asbleaf or other kind of early Potatoes. The usual practice in field culture is to plant a row of Brussels Sprouts between every two rows of Potatoes, the latter being 20 inches apart, and the space between each pair of rows about 30 inches, which admits of them being lifted expeditiously, whilst the Brussels Sprouts make a sturdy growth, which is essential to the production of firm, close, heavy sprouts. We usually grow the imported, which gives firm compact knobs, and these are most esteemed, at least they bring the best prices from the salesman. Scrymger's Giant also gives large firm sprouts, and those are recommended for general purposes. For early use Veitch's Exhibition and The Aigburth are valuable, affording large sprouts, but they are not heavy, and do not fetch nearly as much money as the others. For late use Veitch's Paragon is very superior, the sprouts being close, heavy, and of medium size, and these bring the highest price in the market. Brussels Sprouts usually have the tops cut off in February and sent to market. That throws the vigour into the remaining sprouts, and the crop is then sooner cleared off the ground.

**CAULIFLOWER.**—Early London and Walcheren are grown principally for the first supply of heads in summer from sowings made at the close of August, and very excellent results are obtained from them if the crop can be got in early; and for main crop Walcheren must take first rank, if indeed it have an equal, for general purposes. The one that takes best in the market is Autumn Giant, its large close heads telling most effectively, and the best returns are realised, particularly in autumn and early winter. Where handlights are used Erfurt Mammoth is good as an early variety; but Veitch's Extra Early Dwarf Foreign and Snowball, the distinctness of which is questionable, though very valuable for private use are scarcely large enough for marketing, being placed at a disadvantage if they have to compete with large white heads of late Broccoli.

**BROCCOLI.**—Snow's Winter White takes precedence of all for winter use. Penzance Early White and Adams' Early White, the latter being much the hardier, afford an excellent succession, closely followed by Cooling's Matchless and Leamington. Veitch's Model is superb as a late variety, and gives fine heads on dwarf sturdy plants. Champion Late White is an admirable sort, whilst Lauder's Goshen is splendid in late April and early May, being very hardy, similar remarks applying to Ledsham's Latest of All, an excellent variety for marketing. Broccoli is planted generally in gardens and fields between the rows of Potatoes, and I find it best to insert the Broccoli between every alternate pair of rows of Potatoes, which allows the plants to get stronger, and, sturdiness meaning hardness, the advantage is



considerable; besides, the tops of the Potatoes can be turned away from the Broccoli plants into the space between the two rows of Potatoes if necessary, thereby keeping them sturdy, and the facilities for lifting the Potatoes is considerable, to say nothing of cleanliness afterwards.

Sprouting Broccoli is a paying crop, the best variety being Early Purple Sprouting, which, coming in when Brussels Sprouts are getting over, meets a ready sale, especially after such a season as the last, which was dry in summer, and that with the prolonged severity of the winter has told upon supplies to the advantage of the seller.

**BORECOLE OR KALE.**—This does not bring much to the grower, but being taken as a between crop, and one that may be planted later than autumn Cauliflowers or spring Broccoli, it occupies ground that might otherwise be vacant; and if there be a scarcity of greens in spring the crop may prove remunerative, at least is better than nothing. Tall and Dwarf Green Curled are the hardiest, but I find Read's New Hearting far ahead of all others in largeness of head and in resisting frost and wet, and stands longer than any other before running, bringing a higher price. Cottagers' Kale is useful, and both Buda and Asparagus affording sprouts in spring, they being very hardy, exceeding tender, and good flavoured.

**CABBAGES.**—The principal object is to get these into the market early, for which none surpass Ellam's Dwarf Early Spring. Larger varieties are represented by Denning's Early and Hill's Incomparable; Enfield Market and Battersea being best for the general crop. Drumhead is useful for spring sowing to afford Cabbages in autumn and winter, and so is Denning's, both remaining a long time fit for use and being hardy. Red Dutch is unsurpassed for pickling if care be taken in selecting plants for seed, choosing those that exhibit the highest colour, for to bring good returns the heads must be large, close or heavy, and deep coloured. Early Cabbage is usually taken after Onions, and the Cabbage is cleared in time for Peas, Runners, and where double cropping is practised late Celery between the rows of Peas.

**SAVOYS.**—In autumn and winter these are what Cabbages are in spring and early summer—the staple of green vegetables. For early cutting it is doubtful if there is any better than a carefully selected stock of Early Dwarf Elm, though I think Gilbert's Universal will, at least ought, to supplant it. Drumhead is the best for autumn and early winter use; but it cannot endure wet, and is soon spoiled by frost. To follow Drumhead Dwarf Green Curled is excellent, withstanding wet and frost well, but in loose soil is liable to form loose heads, therefore the soil should be firm; indeed, for all Brassicas in order to a sturdy growth, hardness of plant, and enlargement of the useful part or head. I do not know whether it is generally known or not that all the Brassicas succeed best sown where they are to remain, the ground being firm though in good heart, the seed drilled, and the plants afterwards thinned to the requisite distance. Planting, or rather transplanting, is only matter of convenience and utilisation of space. Chou de Burghley is useful to those requiring Cabbage in winter, being very hardy, withstanding wet well, the quality being excellent, but it does not find much favour at market. Similar remarks apply to Couve Tronchuda, it being esteemed in some private gardens, but is tender and is only useful in autumn. The thick midribs are used similar to Seakale.

**TURNIPS.**—Early Turnips are always in demand. The very best and earliest is Extra Early Milan Strapleaf. It is fine in shape and excellent in every respect; not the least of its merits is its small top, which admits of bunching readily. It comes into use a fortnight before any other, and keeps in condition some time. Next in order comes Early Strapleaf White Stone and Early Stone, or Six Weeks, both capital kinds for summer use. Veitch's Red Globe is superb for general crop and the best for late sowing, keeping well. Golden Ball, or Orange Jelly, is excellent for winter use, but does not find much favour with the cook, only being taken to when white-fleshed kinds cannot be had.

Turnips require firm soil. In loose rich soil they run too much to top, and the seed should be sown thinly or the plants thinned early. It may not be generally known that the best way to have Turnips late is to lift in autumn before the roots are much exposed to frost and lay them in on a north border, the Turnips being entirely covered with soil, which saves them from frost, as the tops are some protection, and from the vicissitudes of climate. In this way they keep until a very late period.—**UTILITARIAN.**

#### SHRUBBY CALCEOLARIAS.

I CAN fully endorse Mr. Brotherston's practical remarks on this subject, and I would recommend those of your readers who have not hitherto succeeded so well in the cultivation of this old-fashioned though indispensable bedding plant, to follow the method of procedure indicated at page

158, and which, if carried out in detail, will insure success. In addition to my own successful experience of the system advocated, I had the pleasure of inspecting the gardens and grounds at Tynningham early last September, on which occasion I was particularly struck with the healthy floriferous condition of the Calceolaria plants in the beautiful and well-kept flower garden opposite the south and west fronts of the mansion, and which, in connection with the well-arranged varieties of other flowering and foliage plants, made a very pretty floral picture, one which Mr. Brotherston might feel justly proud of.

The only Calceolaria grown here for bedding purposes is that excellent old variety *amplexicaulis*, which produces abundance of flowers of a beautiful soft yellow colour from the middle of July until nipped by the frost, and this we propagate in a cold frame in which the cuttings are inserted about 4 inches apart about the middle of October, a week earlier or later according to the weather, in the manner indicated by Mr. Brotherston. As all the beds in our Italian garden, except twenty-four beds devoted exclusively to carpet-bedding plants, are each planted with only one variety of plant, so as to have masses of distinct colours, ranging from scarlet to white, we plant it thinly in the beds to admit of the plants, which are of a straggling habit, being pegged down over the surface of the beds. Thus grown, the effect which *C. amplexicaulis* produces when contrasted with the masses of scarlet, pink, white, &c., is very telling.—**H. W. WARD, Salisbury.**

#### HINTS ON ORCHID CULTURE.

(Continued from page 177.)

**ORCHIDS IN VINERIES.**—Some reference has already been made to the adaptability of vineries for many Orchids, but it deserves more particular attention. In ordinary early houses the Vines are started at a convenient time for starting the Orchids also. The temperature and moisture suitable for one is equally suitable for the other, and later on when the Grapes have been cut and the Vines are resting can be made the resting season of the Orchids. Many fine specimens have been grown in this way, and some of the most remarkable were those exhibited some years ago by Mr. L. Temple, then gardener to W. G. Joy, Esq., Headingley, Leeds. The success of the treatment may be judged from the following particulars of the principal plants:—*Cattleya crispa* superba, 4 feet in diameter, fifty blooms; *C. Harrisoniæ violacea*, 3 feet in diameter; *C. crispa*, 3 feet in diameter, thirty flowers; *Odontoglossum grande*, 2 feet in diameter, forty-one flowers; *Dendrobium nobile*, 4 feet in diameter, 400 blooms; *Miltonia Clowesi*, 3 feet in diameter, 100 blooms; *M. spectabilis*, 3 feet in diameter, forty-nine flowers; *Oncidium flexuosum*, 4 feet in diameter, forty spikes; *Phajus grandifolius*, 4 feet in diameter, thirty spikes; *Cypripedium insigne*, 3 feet in diameter, forty flowers; and *Dendrobium densiflorum*, forty-four spikes. Most of these were grown in tubs 2 feet 6 inches wide and 1 foot deep. These were exceptionally fine specimens, but all the following have been found to thrive with similar treatment:—*Anguloas Clowesi*, *Ruckeri*, *uniflora*; *Arpophyllum giganteum*; *Barkerias elegans*, *Lindleyana*, *Skinneri*, *spectabilis*; *Brassavola glauca*, *Brassia verrucosa*; *Cattleyas citrina*, *Harrisoniæ*, *crispa*, and others; *Cœlogyne cristata*; *Cymbidium eburneum*, *giganteum*, *Hookerianum*, *Mastersi*; *Cypripediums insigne*, *Schlimi*, *Sedeni*, *venustum*, and many others; *Dendrobiums nobile*, *densiflorum*, *thyrsiflorum*, *chrysanthum*, *Hilli*, *speciosum*, *Wardianum*, *Pierardi*, and others; *Epidendrums amabile*, *aromaticum*, *macrochilum*, *vitellinum*; *Lælias albidæ*, *acuminata*, *autumnalis*, *majalis*, *superbiens*; *Lycaste aromatica*, *cruenta*, *Skinneri*; *Masdevallias coccinea*, *Harryana*; *Maxillarias aromatica*, *grandiflora*, *Harrisoni*, *venusta*; *Odontoglossums Alexandræ*, *citrosimum*, *cordatum*, *gloriosum*, *Lindleyanum*, *Pescatorei*, *nævium*; *Phalenopsis pulchellum*, *Uro-Skinneri*; *Oncidium bifidum*, *crispum*, *incanum*, *leucochilum*, *ornithorhynchum*, *serratum*; *Pleione humilis*, *lagenaria*, *maculata*, *Wallichiana*; *Trichopilia tortilis*; *Zyopetalums crinitum*, *Mackayi*, and *maxillare*. It may be remarked that the coolest position should be assigned to the *Masdevallias* and *Odontoglossums* at the forcing period of the year, and for this reason they are better in late vineries than in early ones, as the former are especially impatient of too much artificial heat.

**TEMPERATURE.**—Since Orchids are found in such widely varied districts it can be readily understood that with other conditions the temperatures to which they are exposed differ considerably. In cultivation, however, we are compelled to group the plants as nearly as possible according to their respective requirements as regards heat. Nurserymen and wealthy amateurs who have extensive collections commonly devote houses to each of the larger genera, structures being appropriated to *Cattleyas*, *Lælias*, *Dendrobiums*, *Cypripediums*, *Phalenopsis*, *Vandas*, *Odontoglossums*, *Masdevallias*, &c.; but in smaller establishments it is seldom that more than three houses can be used for Orchids alone; and all that need the protection of glass can be readily grown in those by regulating the temperature. Thus the warmest house (day temperature of the year 65° to 80°) would contain the Orchids from the tropical regions of the Old World, especially the East Indies, the Malayan Archipelago, and adjoining



countries on the main land. An intermediate house (day temperature of the year 60° to 75°) would be used for the tropical Orchids of America, comprising the Cattleyas, Lælias, and other plants from Brazil and the lower parts of Mexico. The third house (day temperature of the year 50° to 65°) would answer for most of the Odontoglossums and Masdevallias, with other plants from high regions in tropical countries. All indoor Orchids can be satisfactorily grouped in these three divisions, and in the following notes they will be referred to as the warm house, intermediate house, and cool house. It should be observed that in general practice there has been a great reduction in the temperatures for Orchids, and some very experienced growers, like Dr. H. Paterson of Bridge of Allan, rely exclusively upon sun heat for the higher summer temperatures, and at that season frequently have no artificial heat. There can be no doubt that highly heated houses during the winter when we are compelled to rest the majority of our Orchids is exceedingly injurious, weakening them and rendering them precocious in flowering, and much more liable to the attacks of insects. If strong growth is made and well ripened under plentiful sun heat and free ventilation Orchids will endure a much lower temperature than is usually supposed, and will be far more satisfactory than when roasted, as they were in the early stages of Orchid culture. As a general guide to the temperature of the year for Orchid houses the following table, which was included in the paper read by Mr. James O'Brien before the Orchid Conference in 1885, is very useful:—

TABLE OF TEMPERATURES FOR ORCHID HOUSES.

Months.	Warm House. East Indian.		Cattleya, or Inter- mediate House.		Cool, or Odonto- glossum House.	
	Day Degrees.	Night Degrees.	Day Degrees.	Night Degrees.	Day Degrees.	Night Degrees.
January .....	65-70	60	60-65	55	50-55	45
February .....	65-70	60	60-65	55	50-55	45
March .....	65-70	60	60-65	55	55-60	50
April .....	65-70	60	60-65	55	55-60	50
May .....	70-75	65	65-70	60	60-65	55
June .....	75-80	70	70-75	65	60-65	55
July .....	75-85	70	70-80	65	60-70	55
August .....	75-85	70	70-80	65	60-70	55
September .....	75-80	70	70-75	65	60-65	55
October .....	70-75	65	65-70	60	60-65	55
November .....	65-70	60	60-65	55	55-60	50
December .....	65-70	60	60-65	55	50-55	45

Amateurs are often puzzled as to the quantity of piping to be used in a house to maintain a particular temperature; and though these matters are best entrusted to horticultural builders, who will give the consideration to the position, exposure, and other circumstances bearing on the point, yet a few hints may be useful as a guide. Many formulæ are given for the purpose of calculating the approximate number of feet of piping necessary, but they are all somewhat perplexing and occasionally misleading. The following, based on a table by Mr. F. H. Fawkes, has the merit of simplicity, and it is, moreover, as nearly correct as any calculation of the kind can be. The length of 4-inch piping named is that needed for each 1000 cubic feet of internal atmospheric contents, and the temperatures, as elsewhere in these notes, are given in degrees Fahrenheit.

Warmest house, 65° to 80°. Lean-to houses, 55 ft. to 65 ft. Spans, 60 ft. to 70 feet.

Intermediate house, 60° to 75°. Lean-to houses, 50 ft. to 60 ft. Spans, 55 ft. to 65 ft.

Cool house, 50° to 65°. Lean-to houses, 40 ft. to 50 ft. Spans, 45 ft. to 55 ft.

These figures practically correspond with what is usually recommended for span-roof houses of good size—namely, warm house, four rows of pipes in each side; intermediate house, three rows; and cool house, two rows, and from them an idea can be gained as to what extent of piping is needed, but it is always advisable to have too much than too little, as is proved in houses of all kinds, whether devoted to plants or fruits. The greater the radiating surface the more regular the temperature, and the less injurious it is to the plants in severe weather when it may be necessary to keep the fires going briskly.

It may be observed that if a few particulars are known respecting the habitat of newly introduced Orchids it is not difficult to provide for their requirements. The first point is to ascertain the country and latitude, then the altitude, and finally any other circumstances, such as whether the position is exposed or shaded, and in the case of terrestrial Orchids the character of the soil in which they are growing. The rule usually given for calculating the depression of temperature in ascending mountains is to allow a fall of 1° Fahr. for every 300 to 350 feet of altitude, but the depression is more rapid in the higher regions. Thus in the tropics, where the temperature at the ground level might be 80°, at an elevation of 6 to 7000 feet would be estimated to be 55° to 60°. This is, however, necessarily influenced to a great

extent by the position of the land, whether sloping towards the sun or not, also whether the mountains are near the sea or inland; but an approximate idea may be gained of what the plants need.

#### CULTURAL MATERIALS.

Good results in plant culture are largely dependent upon the soil employed for them, and too little attention is often paid to the subject. For Orchids it is particularly important, and a few notes on the principal materials necessary may be useful.

**PEAT.**—This is a well-known substance used extensively for hard-wooded plants, Heaths, &c.; and for the majority of Orchids it is indispensable. It varies greatly in its character, depending chiefly upon the nature of the soil where it is obtained and the roots of which it is composed. In some places it consists mainly of the roots of grasses and a black soil derived from the decomposition of vegetation, and is then termed bog peat; in others it chiefly comprises wild Heath roots and finer grasses, and is found in higher districts, a third kind being mainly formed of Fern roots and rhizomes, both the last named containing a varying proportion of light brownish soil from the farther decomposition of the roots, &c. These are the principal kinds, but there are many intermediate grades. The bog peat, which also generally contains a proportion of sand, is most suitable for Heaths and similar plants; the second kind is used for Ferns, and the third is the best for Orchids. For these plants it must abound in fibre, and the smaller particles should be shaken out before it is used, when it can be broken up into pieces of various sizes according to the plants for which it is to be employed, but never very small. If a quantity is procured at one time it must be stacked where it will not be exposed to the wet, and yet not in a hot position where it will become too much dried. When ordering peat intending purchasers should state that it is required for Orchids, and the dealers will then know what to supply.

**SPHAGNUM.**—The moss used for Orchids consists mainly of *Sphagnum obtusifolium*, but *S. squarrosum*, *S. acutifolium* and *cuspidatum*, with others that have been considered as varieties of one species, are also abundant in some districts. These are termed bog mosses, and are found in low moist places frequently partly submerged, and are abundant in most parts of Britain. The sphagnum serves as a retainer of moisture, and by its decay furnishes something for the support of the plant's grown in it. When received it should be spread out on a bench or floor and carefully picked and selected, removing all the weeds, leaves, grasses, or foreign substances, and divide it into three qualities. The first should consist of the fresh-growing points of the shoots, which must be preserved for surfacing; the next in freshness will be set aside for chopping up and mixing with peat for potting; and the third, comprising all the roughest and most decayed portions, being employed for covering the drainage in the pots before the principal soil is placed in. It should all be kept in a damp warm position, especially the first named, to induce growth, which soon takes place under favourable circumstances, assuming a bright green colour. The chopped sphagnum is sometimes scalded with hot water to destroy insects, and in any case these must be looked after very closely or they will do much mischief afterwards, when they cannot be so readily found. A substance termed Trepho, consisting of compressed sphagnum, is prepared and sold by Mr. B. Field, 170, Old Kent Road, and has been recommended by several Orchid growers for blocks or for potting purposes. The sphagnum is placed under hydraulic pressure, and thus formed into compact firm blocks that can be cut to any size required, which, as might be imagined from the nature of the substance, are very retentive of moisture. It is employed in this way as blocks to grow Orchids upon and for breaking up as a substitute for or an addition to peat. It is well worth a trial, and the fact that it is being employed by some nurserymen is a sufficient proof of its merit.

**LOAM, CHARCOAL, AND POTSDHERDS.**—For exotic Orchids loam is not much used except for *Calanthes*, a few *Cypripediums*, or other strong-growing species; but whenever employed it should be of a light fibrous character, heavy and clayey loam being especially avoided, and that of a very sandy nature is also unsuitable. It must be stacked as for other plants and used in an intermediate state of moisture. Charcoal is an important material for mixing with compost for many Orchids, and some, like the *Phalænopses* and others of that character, can be grown in that and potsherds alone. The latter must be thoroughly cleansed and sorted in different sizes, using the largest for the lower drainage in pots and for baskets.

**MANURES.**—Though ordinary manures have been long used for strong-growing Orchids of the *Calanthe*, *Cypripedium insigne*, and *Dendrobium nobile* types, they have not come into general use for other Orchids, and it is quite evident that although some of the character named may be benefited by stimulants, these must be employed very sparingly and with great judgment for the majority. It is true that many tropical Orchids grow where there is naturally a luxuriant vegetation, and the gases arising from the rapid decomposi-



tion may be supposed to be beneficial ; also that bird guano deposited upon the stems and branches of trees may afford some support of this kind. Under artificial conditions it is, however, necessary to be extremely cautious or much injury will result, and beginners had better abstain from dangerous experiments until they gain more knowledge of Orchid culture. Some experienced cultivators have, however, proved that manures can be employed with advantage, and several have been recommended for the purpose. Cow manure in an old and partially exhausted condition is used for mixing with the soil for strong terrestrial Orchids, chiefly for those needing loam, and which will be afterwards enumerated. Horse, sheep manure, and soot are similarly used, but the most elaborate trials appear to have been made with Jensen's fish guano, Mr. A. Borwick of Higham Hill, Walthamstow, having tried it generally on a miscellaneous collection of Orchids with evident advantage to the majority, especially *Cymbidiums*, *Lycastes*, and *Coelogynes*, which have made very strong growths. This was used at the rate of a 48-potful to a barrowload of peat or other soil ; but it is safer to use a smaller quantity, and in any case this or any other manure should be thoroughly mixed with the compost. The manures named are also used as liquids diluted with water, but these must always be very weak—scarcely tinged ; or in the case of the fish potash  $\frac{1}{4}$  oz. to a gallon is ample, and less is advisable. As liquids, and for sprinkling upon the stages or floors of houses, some persons have tried nitrate of soda, sulphate of ammonia, and carbonate of ammonia, which are dissolved in water and then sprinkled about. Sometimes pieces of the carbonate are placed in jars in the pipes and allowed to remain there constantly, thus giving off a supply of ammonia. Experiments of this kind have been found



Fig. 31.

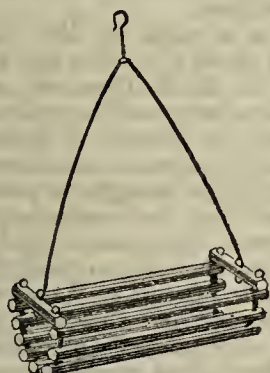


Fig. 32.

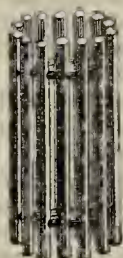


Fig. 33.

to improve the colour of the foliage wonderfully ; but when given to the plants in a comparatively strong state they either make a vigorous growth and become exhausted and turn yellow, or their roots are at once killed. At The Grange, Wallington, the residence of A. H. Smee, Esq., where so many interesting experiments have been tried, Clay's Fertiliser has been employed for many Orchids, applied as a top-dressing for the strongest, or about a spoonful is placed in a gallon of water, and the liquid thus formed is given to the majority of terrestrial Orchids. A very strong specimen of *Cyrtopodium Saintlegerianum*, which had been thus treated has been exhibited and certificated at South Kensington.

#### CULTURAL UTENSILS.

**POTS AND PANS.**—Large numbers of Orchids are now grown in pots and pans, more so, perhaps, than formerly, when baskets, rafts, and blocks were almost exclusively used for epiphytal species. They are obtained in a great variety of sizes and shapes ; some very artistic, such as Mr. Matthews occasionally exhibits, and others of plainer design, but equally useful. Those with perforated sides are preferred by some, and they have the advantage of affording a quick drainage, which is necessary if deep pots are used. Shallow pots or deep pans for large specimens are, however, being more generally employed, and of late small pans, 3 inches deep and 4 to 6 inches in diameter, have become popular for many Orchids, and it is astonishing what pretty plants can be grown in them, *Odontoglossums* of the *Cervantesi* and *Rossi* character, *Sophranitis*, and other small Orchids doing well, while some of the *Dendrobiums* succeed admirably in the same way. All, in fact, that do not need much root space. Where insects are troublesome it is a common practice to invert a pot in a saucer of water and place the other on this ; but a simpler way of accomplishing the same object is afforded by the Orchid pan employed at Downside, Leatherhead, which was prepared from a design by the gardener, Mr. Woolford. It consists of an ordinary saucer, in the centre of which arises a little pillar expanded at the top into a flattened plate, upon which the pot is placed. The saucer being then filled with water, no insects can pass from the stage to the plant.

**BASKETS AND BLOCKS.**—Baskets suitable for Orchids are readily

constructed, but they are now so cheap that it is much better to purchase them from some of the dealers, from whom they can be obtained of any size desired and of several forms. They are mostly made of teak, and are very durable, though constantly exposed to moisture. The principal forms are shown in the accompanying cuts, which represent some of those made by Mr. Sidney Williams, 21, Farringdon Road. The ordinary square basket is formed with the bars extended at the end, as in fig. 31, or with the ends flush, and it is immaterial which is employed ; they are also made with four wires for suspending them by, and with two, but the former is generally preferred. Fig. 32 represents a boat basket, a convenient form for some Orchids, and fig. 33 is a cylinder, employed in many establishments for *Phalænopsis* and similar kinds. Mr. Bonny, Hackney Downs, also constructs very useful baskets in which the wires are removeable, so that different lengths can be employed as desired, and cane is used between the bars instead of lead. For blocks almost any wood is suitable that is not so soft that it readily decays, or of so hard and close a texture that the roots cannot obtain a hold upon it ; but teak slabs are also frequently used as blocks, rafts formed of parallel bars answering the same purpose. A soft freestone has been used as blocks for epiphytal Orchids with good results, and porous earthenware pots, filled with water inside and the plants secured to the outer surface, have been found similarly suitable for many species. The use of compressed sphagnum for this purpose has been already noticed.

Of miscellaneous utensils the most important, in addition to the ordinary watering cans with fine and coarse roses, and syringe with nozzle and rose, will be a little metal tank on wheels for dipping baskets, blocks, &c., where the collection is large, as it can be taken round the house and the work quickly performed. For a small collection a pail will suffice.—AN AMATEUR.

(To be continued.)

#### A FEW NOTES ON CLUBBING.

OCCASIONAL notices appear in your valuable Journal in reference to this disease, and where it is experienced in so bad a way as here, no one would be surprised at every attempt being made to overcome it. I believe, however, that but few culturists experience it really bad. I have been employed in gardens where it hardly ever occurred, and it never gave any anxiety. Cauliflowers were frequently destroyed by maggots, but this is very different, and not so bad when in its worst form as clubbing. Where I write clubbing is so certain that with the exception of curled greens and Cabbage, all the other kinds—Cauliflowers, Sprouts, Savoy, and Broccoli—are but risky crops to grow on account of this pest. The soil here is a light friable loam on a gravel subsoil. In my first year's experience of it I thought I had a fairly good supply of winter vegetables coming on, but before the summer was nearly over, on some hot days I scarcely understood what was wrong with the stretch of Brassicas, as all the leaves were quite flat, but after further inspection it soon was proved to be clubbing, worse than ever I had seen it before. After this I made many inquiries on this subject to see what could be done to cure it. In one case I was told that the ground was exhausted, and if it was trenched, bringing up fresh soil, that would cure it. This was done, but it had not the desired effect. Next, I think, I tried liming, digging it in in the winter time after it was spread on the surface in quantity like a fair ordinary manuring. After this the clubbing was not gone. Again, or next year, at planting time I had a large heap made up of leaf mould, soot, old potting soil, and such material as could be collected, and under each row of plants I had some of this put to the roots. After this the result was the best that I have yet had. I have noticed that some ground seems to favour it more than others, and I have pulled plant after plant in the autumn with the clubbing so large that the roots might be said to be as large as both hands shut together, or the size of a cocoa-nut, only rough in form. Some years I have bought in all, or nearly all, of the plants from ground where they did not club, and no doubt this was a little help, as it was hopeless to plant those of our own raising when they were beginning to club in the seed bed. We have been tolerably successful with early Cauliflowers, but these are usually plants out of pots, and if I want to make the most of them I resort to the plan of placing fresh soil to the roots, such as old potting soil. It would be a great advantage to us if we knew a simple and effectual cure.—R. M., Cheshire.

#### LIME FOR VINE BORDERS.

##### ANALYSIS OF SOIL.

IF "A. L. G." reads my remarks on page 104 again, he will see that no personalities were intended. He thinks that the information he gives is correct. Does he mean the method by which he tests whether soil contains lime or not, or the extracts quoted from Warrington's "Chemistry of the Farm?" The point has not been disputed, but the accuracy of the latter he has failed to demonstrate. On the contrary, he now advocates the use of lime, but the quantity quoted for land similar to what I described would be of very little service. I have tested this small application system, but it neither prevents clubbing nor adds materially to the productiveness of the land. A liberal dressing, such as "Thinker" and



myself have recommended, would change the nature of the soil, prevent clubbing, and add to the fertility of the land for several years without a further application. "A. L. G." condemns my method of applying lime, but what really is the difference between his system and my own? Practically there is none. He writes "pricked in," and I say Dig it in. Digging the ground by both is advised, and if manure is to be used it should be dug in before the lime is applied.

I have learned by practice that 12 per cent. of lime reduced to powder is not too much to incorporate with limeless soil for Vines. I am willing to grant that the fibre of the loam may be decomposed somewhat more quickly than would be the case if not mixed with the soil; but had not this better be done than the Vines grown for a number of years without sufficient lime in the soil in such a condition that they could take it up and utilise it for their support? Plants only take up by their roots in a liquid state what food they require—that is, water, other substances being dissolved in it. I do not here allude to what they take from the atmosphere by their branches and leaves. This being the case, how long would it be before the whole or nearly whole bones advised were sufficiently dissolved to supply the requisite quantity of lime to the Vines? I have made Vine borders on this principle, not with whole bones, but inch and half-inch sizes with the dust left in. This produced wood strong enough, but it was always pithy—never bad that firmness desirable in well ripened canes. When lime was applied, as recommended in my first and second article on this subject, it changed this state of things, and the process has been continued because it has proved advantageous. I think it is of very little moment whether bones are used fresh or not, for the loam selected for Vine borders is generally, or should be, rich in nitrogenous food—in fact, too rich, and failure is not unfrequently the result. Vine borders made but a few years ago with flesh and bones freely incorporated were, by all accounts, to revolutionise Vine-growing; but the reverse proved the case, for the borders were poisoned and the Vines proved a failure.

On page 153 "A. L. G." writes—"If slacked lime is applied it would be better as a top-dressing, but not in the way Mr. Bardney advises;" and further it is stated—"It would be better to give the lime first and wash it in before applying the compost." On page 37 I wrote—"The lime was mixed with water in a tank outside the house, and then poured upon the border and washed in with tepid water. In autumn several barrowfuls were worked into the border." How does your correspondent suppose it was worked into the border but into the surface, and what would he call this but a top-dressing? Again, at the close of my first article, page 38, I write—"In cases where borders have been made with soil from a sandstone formation, and the Grapes are not colouring well, or the Vines not satisfactory in other respects, and the quantity of lime given them has been small, they might be materially improved by a liberal dressing for a season or two, the dressing of manure being dispensed with for that time." It is needless for me to write further on this head.

The small quantity of ammonia that might be driven off by incorporating lime with the compost is not worth naming. The whole ingredients of the compost when placed upon the border become part of it, and are not removed in autumn and winter. I do not believe in putting it on to take it off again, but what is given is taken full possession of annually by the roots. Mushroom-bed refuse, or the manure from hotbeds that may be used, is placed upon the border as a mulching, so as to keep the compost beneath moist. This is removed annually, but not that incorporated with the loam and lime, and which adds humus to the border. If "A. L. G." puts manure on Vine borders annually and takes it all off again I am afraid the roots of his Vines are not very near the surface, or if so he must destroy a great quantity in its removal. Good agricultural soils are supposed to contain from 3 to 10 per cent. of humus, and a rich garden at least 25 per cent. This is three times the quantity, and if a Vine border is not as rich in humus as the last then it ought to be. I do not know what is the condition of "A. L. G.'s" border, but mine are rich in humus, and so are the majority of others from which good Grapes are cut.—WM. BARDNEY.

"T. S." writes: "Will Mr. Bardney kindly say if he measures his lime fresh from the kiln or after slacking? I presume it is in the first-named state, but as slacked lime occupies more space than stone, I should like to be clear on the point."

Replying to this question our correspondent sends the following note:—

"The lime used for the kitchen garden was measured as received and before slacking, but for Vine borders after being reduced to powder. We generally keep a quantity of lime in an open shed during the winter for mixing in the compost for top-dressing and working into fruit tree borders. This frequently absorbs sufficient moisture to cause it to fall without having to apply any, except perhaps to any lumps in the interior of the heap."

#### POTATOES FOR EXHIBITION.

I WAS much interested in Mr. Iggulden's remarks under this heading, but I cannot understand why Mr. Howard should grow Edgcott Purple for the last time in 1885 "owing to the quality being second rate or worse;" and yet farther on Mr. Howard selects it with eleven others as "good for both table and show." Surely there is a mistake here. I see Mr. Bresee is retained. With me, on my very light soil, it is a handsome and prolific Potato, but I can only call the quality second rate; and it frequently has streaks of pink right through, which does not improve its

appearance on the table. White Elephant has been good with me the last two years, but before it was inclined to be waxy.

I miss two Potatoes from Mr. Howard's list which I find exceedingly good in quality and appearance, Sharpe's Victor and Matchless. They are both great favourites of mine, and I cannot find a fault with them. Perhaps they may be of inferior quality elsewhere, for it really is very striking how Potatoes differ according to locality.

We have now had Mr. Marriott on Peas, Mr. Iggulden on Potatoes and Melons, and Mr. Abbey on Melons. Is it asking too much to request some of your able contributors to give us their opinions and experience in Cucumber culture, or Beans, or Onions? So far I find Purley Park Hero Cucumber, Ne Plus Ultra and Negro Mammoth Dwarf Beans, and a selection of White Spanish Onion the best to grow. Can I do better?—H. S. EASTY.

#### TUBEROUS BEGONIAS.

THESE plants have been much improved of late years, and as a consequence they have become most deservedly popular. Yet they are by no means generally so well known as might have been reasonably expected. There are few amateur or professional gardeners who have not made an attempt to cultivate Tuberous Begonias, but only a small per-centage succeed as they hoped. The true cause of so many failures is an over-anxiety, this leading to coddling and other mistaken practices, especially at the commencement of the growing season, which ultimately reduces the plants to a sickly appearance, and for which there is no cure during that season at least. There is really nothing to prevent all classes growing these beautiful Begonias, as they are essentially everybody's flowers, being equally as well adapted for window as house culture.

My first serious attempt at the cultivation of Tuberous Begonias was made about five years ago with a strain kindly sent from Drumlanrig by Mr. D. Thomson, and although the sorts obtained are not so showy and beautiful as those raised from seed since supplied by Messrs. J. Laing & Co. and Messrs. Sutton & Sons, they possess much stronger constitution, the tubers now being large enough to produce numerous strong growths. They are kept for conservatory decoration, and are useful for back rows. Home-saved seed invariably germinates most surely, but I am disposed to think the purchased seed may either be mixed—that is to say, is of two or more season's growth, or the strains are choicer and therefore possessing less vitality. It is a well-known characteristic of extra choice sorts to be of delicate growth. Instead of grumbling as many do at the smallness of a packet of seed, and it must be admitted packets of choice Begonia seed are very small indeed, the novice and even the experienced ought to be thankful that one cause of disappointment may by this means be averted. It is in this way. We sow all the seed, and if fortunate the greater part germinate, but as all are not wanted, there being more than can be properly grown, only the strongest are pricked off and the best as it were left in the seed pan to perish, simply owing to their being passed over in favour of their stronger yet inferior brethren. When we have only comparatively few seeds we of necessity cultivate every plant obtained from the sowing, and thereby secure one or several valuable sorts that are worth much more than the seed cost, and the remainder perhaps will be also considered worth keeping for a time. I have been supplied with tubers of several good double varieties, but from one packet of seed we have secured several very fine sorts, including two valuable whites, really superior to the named sorts. I mention this because so many complain to me of their "bad luck" with seed of double sorts, and for which they have most frequently themselves to blame. We have also raised several very good singles from seed, but as a rule they are not equal to the choice named sorts, of which tubers are distributed in a dry state.

I consider the first week in February a good time to sow the seeds, as at this time the sun has not gained much power; whereas if the operation is delayed till late in the spring, a great difficulty is experienced in keeping the seed pans uniformly moist without also either disturbing the minute seeds or the delicate seedlings. A mild hotbed, in preference to any drier heat, formed in a forcing house, is the most favourable position for raising the seedlings, but many, with a little extra trouble, are also very successful with Cucumber or Melon frames only. Either pans or well-drained pots are suitable, these being prepared for the seeds by having the drainage covered with any rough material, on this being placed sufficient fine peaty soil, or failing this sifted loam and leaf soil in equal proportions, adding sand freely to fill them up to the rim. This should be made firm and quite smooth and level, and then either lightly soaked in a tank or tub of warm water, or be properly moistened through a fine-rose watering pot. After the water is drained out of the pots or pans, as the case may be, the seed may be sown, this



being done very carefully and evenly from the tiny paper it is folded in. It must on no account be covered with soil, but a little fine dry silver sand may be dusted over, though no more of this than will just whiten the surface. Some prefer to sow on the top of a rather heavy surfacing of sand, but I have found when this is done that the seedlings are very slow in gaining a root-hold, many being lost after germinating. The pots or pans should be plunged into the hotbed and be covered closely with a square of glass, a little of the plunging material being distributed over the latter. The soil must be kept uniformly moist, but the less watering there is needed the better, as the seeds or even the seedlings are easily dislodged and ruined. We never venture to water our very fine seeds or seedlings, as sprinklings through a very fine-rose watering pot besides being risky are sometimes deceptive in their effect. The best plan is to partly immerse the pot or pan into a bucket or tank of tepid water, allowing the moisture to gradually work upwards, then after withdrawal if the drainage is good the water soon leaves them and without unduly saturating the soil. I must, however, warn some of my younger readers to whose tender mercies a packet of Begonia seeds may be consigned, that partial immersion is very different to submersion, as if the latter plan of moistening the soil is adopted there is every prospect of some unoffending seedsman being condemned for supplying bad seeds, and which perhaps were simply washed out of the pots.

Directly the seedlings are discernible the shading should be removed from the glass, returning a portion of it only whenever the sun is shining brightly. In the course of about three days the glass may be propped up, but not removed till such times as the seedlings may be strong enough to stand a little rough usage, or say part of the contents of a syringe which many are rather fond of throwing about where least needed. The seedlings are best kept on the hotbed, as there is little danger of their being drawn, and dry hot shelves are not suitable for Begonias in any stage of growth. When the most forward of them are large enough to handle they should be pricked out about 2 inches apart in pans of fine soil, composed of equal parts loam and peat or loam and good leaf soil, the latter preferably, adding silver sand freely. This ought to be warmed prior to being used, and if very dry be moistened with tepid water. The strongest of the seedlings may then be transferred to the pans with the aid of a label without disturbing those that are not large enough to remove, the holes made being filled up if necessary with a little fine soil or sand. After being watered the seedlings pricked out should be stood with the original seed pan and shaded when necessary. Directly they touch each other they should be transferred, with little balls of soil and roots, to ordinary Pelargonium boxes, these being previously drained and filled with rather fine compost similar to that just recommended, disposing them about 4 inches apart each way, still be kept growing on the hotbed. We find that they grow much more freely in these boxes than they do when potted, and it is just at this intermediate stage when so many seedlings come to a standstill. By the time they are become established in their fresh quarters they will need less heat and should be gradually inured to a cooler house or frame, the same treatment being given to those that were necessarily left in the seed pan for a few days or weeks longer.

The next point to be decided is whether these seedlings shall for a few weeks, or rather months, be grown in the open air or be hurried into flower under glass. This to a certain extent ought to depend upon circumstances. Those who want an early display may pot their seedlings as soon as they touch each other, 5-inch pots being a good size, and a suitable compost consists of two parts of turfy loam to one of leaf soil, a little fine decayed manure and silver or gritty sand being mixed with it. Those newly potted plants may be kept rather close, but not in a high temperature, for a few days, and directly they are recovered from the slight check they may be removed to a greenhouse and encouraged to flower as long as they will. A fairly light position should be assigned them. They ought not to be pinched back at any time, are not benefited by syringings, but ought never to suffer by want of water, and when the pots are full of roots they will be greatly assisted by frequent supplies of weak liquid manure. In this manner it is a comparatively easy matter to secure strong branching plants by the autumn; but if strong tubers are wanted for the following season to replace, it may be, the stock of older and inferior sorts, it will be found most advantageous to plant them out during the summer in temporary frames constructed at the back of a south wall. About 6 inches of good light soil (we use decayed leaf soil freely) is ample, and in this they may be transplanted from the boxes, disposing them about 6 inches apart each way. They may be covered with frames for a few days, but would succeed without them, and with little further trouble soon grow to a good size and flower freely. They

can be readily potted when in full bloom, a little shade being given for a few days, and for house decoration during September and October we have found plants thus grown of great service. Any not worth farther cultivation are weeded out, and the remainder not potted up are lifted after being damaged by frost and stored thickly in Pelargonium boxes, the soil immediately surrounding the tubers being sufficient to keep them plump and sound, all that is necessary being to protect them from severe frosts. I have taken more space than anticipated in describing our method of raising these Begonias, and must therefore postpone my remarks on propagating by cuttings as well as the starting and subsequent treatment of dry tubers, the latter being best kept dormant for some time longer.—W. IGGULDEN.

#### SPARROWS DESTROYING GOOSEBERRY AND CURRANT BUDS.

UNTIL within the last three years I have not had any experience of sparrows destroying fruit buds. I have defended them from attack in the columns of this Journal on more than one occasion, and though I now admit that they do eat fruit buds I am not prepared to wage a war of extermination against them. Last winter marked my first experience with sparrows eating Gooseberry and Currant buds. Sprinkling the bushes with petroleum in mixture with water at the rate of a quarter of a pint per 3 gallons, 2 ozs. soft-soap per gallon having previously been dissolved in the water, was sufficient to keep them away; but this winter they commenced on the Currants in November, the blue titmouse being their forerunner on the bushes, which I attributed to the birds' search for aphides. The blue titmouse certainly did not destroy any buds, or only where the buds were so clustered on the spurs that in getting at the aphides secreted there some few of the buds had been disturbed and were left on the ground entire. I thought the sparrows had come to assist in the good work, but I found they took the buds altogether. The petroleum remedy was tried, but though it deterred them at first the sparrows were at the bushes again directly after the first rain following the petroleum dressing. It was of very little use, and as destroying the birds was forbidden—and I think rightly—I was driven to the expedient of running black thread in wide mesh-like order over the bushes. This answered perfectly.

I have some rows of winter Spinach between rows of the bushes, and the leaves were eaten by the sparrows, even the hearts being pecked out. A single row of black thread directly over the Spinach, and quite 6 inches above ground, is sufficient to keep them off. I have long been accustomed to run lines of black thread to keep them from eating Peas after they appear above ground and until fit to stake; but last year I had to run thread a considerable height up the Pea-sticks to keep the sparrows from eating the Pea leaves and tender shoots off. They are very fond of Lettuces, eating that standing for spring and early summer use with great avidity; also the first leaves of Radishes, pulling up the plants, and seem to take especial delight in drawing Onions as they appear above ground, and cutting off Beet plants. In hard weather they will take to the leaves of Brassicas, but like something more tender if it can be had. Sparrows pluck off the pips of Primroses, Polyanthus, and Auriculas, and tear the bloom of Crocuses, particularly the yellow ones, into shreds. If they have their own way they do considerable mischief, but take the precaution to have black thread in store, keep a sharp look out, and then the sparrow is useful. It devours myriads of aphides; it clears foliage of an incalculable quantity of small caterpillars.—G. ABBEY.



At a general meeting of the ROYAL HORTICULTURAL SOCIETY, held March 9th, Geo. F. Wilson, Esq., F.R.S., in the chair, the following candidates were unanimously elected Fellows—viz, Miss Beatrice G. Astley, H. R. Chaston, Sir Francis Cook, Bart., Robert Delf, Mrs. Sewell, Walter Watts.

— GRAND NATIONAL DAHLIA SHOW, 1886.—The arrangements in connection with the Grand National Show of Dahlias to be held on September 3rd and 4th at the Crystal Palace have now been completed. The prize schedule has been printed and circulated amongst the former subscribers and exhibitors; the same well-known and trusty florists have been selected to award the prizes, and the same Executive Committee has been appointed as a substantial aid to the Honorary Secretary. In regard to its finances, the Show cannot be thoroughly successful unless liberally supported by the growers and admirers of the Dahlia, who will therefore, we trust, keep the officials busily occupied in sending out receipts for their donations. Those also who believe in the beneficial influence of



flower shows may well lend a helping hand. Contributions should be sent to the Honorary Secretary and Treasurer, Mr. Thomas Moore, Botanic Garden, Chelsea, London, S.W., who will gladly acknowledge them. We may add to the foregoing that the second of the Dahlia competitions for the possession of the TURNER MEMORIAL PRIZE CUP will take place at the Crystal Palace on the occasion of this Show, and will greatly increase the interest with which it can be watched by those who are admirers of this noble autumn flower.

— RELATIVE to the FROST that has prevailed during the past week, Mr. N. H. Pownall states that the thermometer registered 10° on Sunday night last, or 22° of frost in Lenton Gardens, Nottingham; on the same morning the reading at Old Warden, Bedfordshire, by Mr. Allis was 18°, or 14° of frost. A Wakefield correspondent writes: "The weather in this neighbourhood seems to get more severe. The thermometer registered 24° below freezing—viz., 8° last night (8th inst.), and the ground has been covered with about 7 or 8 inches of snow, which has every appearance of remaining some time. This is an anxious time for gardeners." From Alderminster Lodge, Stratford-on-Avon, we have received the following:—"We are having very severe weather at night, with bright sunshine in daytime. The last three nights I have registered on a sheltered warm south wall 16°, 19°, and 18° of frost, while in the open on the north side 23°, 25°, and 24° have been registered. The winter and spring Beans will, I fear, be greatly injured." In the vicinity of London sharp frosts have prevailed and keen winds, but no snow, and the last few days were sunny.

— WE are informed that MESSRS. SUTTON & SONS, Reading, intend offering upwards of £16 in six prizes for collections of vegetables at the Provincial Show of the Royal Horticultural Society at Liverpool, also three prizes for Melons, particulars of which will no doubt be issued in the schedule of the Exhibition.

— MR. H. S. EASTY writes: "In answer to 'A. M.'s' inquiry respecting the SELECTION AND SUCCESSION OF PEAS, I think he will find the following of high quality and prolific bearers:—Gem of the Season (Daniels), William I., Dr. Hogg, for earliest; Champion of England Duke of Albany, and Evolution, for midseason; Ne Plus Ultra, Veitch's Perfection, Veitch's Sturdy, and Laxton's Omega, for latest. Dr. Hogg is nearly if not quite the sweetest Pea grown, and no Pea excels Ne Plus Ultra. 'A. M.' was really answered, and extremely well answered, on page 183, 'Peas for Use' ('B. L. E.'). Only three varieties are mentioned there in place of my ten."

— WE understand that the well-known botanist, DR. E. REGEL, who has been director of the St. Petersburg Botanic Gardens for a number of years, has resigned the appointment, and has been succeeded by Dr. Engler.

— THE GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY announce their Spring Show this year for March 24th, the Autumn Show taking place on September 8th in the St. Andrew's Hall. The schedule is of the usual character, a large number of classes being provided, and the prizes ranging from £4 to 3s.

— MESSRS. LUCOMBE, PINE & CO. have lately had an EXHIBITION OF HYACINTHS, at which several well-grown collections were entered in competition for the prizes offered by the firm. The best came from the Rev. T. J. Yarde (gardener, Mr. J. Dawe), who was followed by Mrs. Norris, Pinhoe (gardener, Mr. F. Viney), and Mr. Barnett, Tiverton (gardener, Mr. Sparkes). Mr. Dawe's Hyacinths had some handsome spikes, especially La Grandesse, which was wonderfully fine. In the second prize collection, Von Schiller, Czar Peter, and Duke of Connaught were the best. The Camellias at this nursery are now flowering very freely with many other plants.

— MESSRS. J. LAING & CO., Forest Hill, have succeeded in flowering the new CATTLEYA LAWRENCIANA, having two plants, one with a spike of three flowers, the other with two, and one bloom on another growth. The colour is good, and lip uncommonly deep (a dark purple). It may be remembered that a plant of this Cattleya was shown at South Kensington in February, but the flowers then were probably not in their best condition, as some dissatisfaction was generally expressed concerning it. The flowers are now assuming more of their true characters.

— THE WILTS HORTICULTURAL SOCIETY will hold a show at Salisbury on July 29th next, when liberal prizes will be offered in the leading classes. For twelve stove and greenhouse plants the first prize is

£15, for twelve variegated and fine-foliage stove and greenhouse plants the first prize is £13, others of smaller amount being offered in several other good classes. The Hon. Sec. is Mr. W. H. Williams, Salisbury.

— "JUVENIS" writes:—"In the Journal of the 4th inst. I was glad to find part of a letter of mine referring to HYBRIDISATION OF SWEET BRIAR, but the word 'or' is printed instead of 'and' between the words 'Sweet Briar' and 'Rosa rugosa.' I should be glad to hear whether any of the readers of the Journal have ever tried hybridising Sweet Briar with Fortune's Yellow, and whether any lovers of the Rose of long experience think any of the crosses between 'Sweet Briar' and other Roses I have mentioned worth a trial."

— THE TUNBRIDGE WELLS HORTICULTURAL SOCIETY will hold their annual Show at Tunbridge Wells on Friday, July 2nd. The annual Show of the MAIDENHEAD HORTICULTURAL SOCIETY is fixed for Thursday, August 19th, 1886.

— THE OFFICIAL REPORT OF THE ORCHID CONFERENCE held by the Royal Horticultural Society at South Kensington in May last year is now issued, forming the first portion of vol. vii. of the Society's Journal. It comprises 155 pages, giving a full report of the papers read at the Conference, the discussion, and the exhibition, the greater portion of which has already appeared in these pages and elsewhere. A horticultural report on the plants exhibited is contributed by Mr. F. W. Burbidge; and Mr. H. N. Ridley has a chapter devoted to the botanical consideration of the Orchids shown, both of which contain some interesting matter. Though somewhat late in appearing, the Report will be welcomed by many persons as giving all the particulars concerning the Conference brought together in a convenient form. It is, however, regrettable that more care has not been exercised in the revision, especially of the horticultural portion.

— WE are glad to observe that the remarkably successful SHROPSHIRE FLORAL AND HORTICULTURAL SOCIETY continues its prosperous career. The receipts for 1885 were upwards of £2250, the largest since the formation of the Society. The profits realised during the year exceeded £500, and the balance in hand at the present time is £725 10s. 4d. The Spring Show for the present year will be held on April 1st, and the Summer Show on August 18th and 19th. The schedules are comprehensive, fifty-two classes being provided for the former Show and 145 for the latter, £60 being offered in one class for stove and greenhouse plants.

— A VARIEGATA FICUS REPENS in the Cambridge Botanic Gardens, Massachusetts, is thus described: "It is beautifully variegated with white; not a dirty white as often seen in variegated-leaved plants, but a clear striking white. About half the foliage was white, giving it sufficient to make it attractive. For decorative purposes this will make a suitable plant; either grown into large specimens neatly trained, or grown in small pots, it can be kept in a compact bushy form, and will answer the same purpose some of the Selaginellas are now used for. With sufficient to cover the back wall of a fernery or Orchid house, what a beautiful object it would make. It appears to grow just as strong as Ficus repens, from which it is a sport."

— WE regret to have to announce the death of MR. ROBERT PRESTON KER of Liverpool, a nurseryman well known and much respected in the district, and by all who knew him. He was born at Hassendeanburn, Hawick, on July 21st, 1816, and was therefore in his seventieth year at the time of his death, which took place on March 4th. Under his management the business grew to be one of the most important in the north of England, and has been particularly noted in recent years for the handsome Crotons shown at the leading exhibitions.

— AMONGST many vegetable growers who read this Journal we may include a few vegetarians, to whom the following note from a professional musician will be interesting:—"I speak from an eight-year's experience as a vegetarian, adopted at the outset from motives of economy, to enable me to prosecute my studies in a most trying profession—viz., that of an 'English Musical Artist,' my day's work during the earlier years of my professional career regularly commencing within twenty minutes of rising at 4.30 A.M., and continuing, with necessary intervals for meals, for nine, ten, and sometimes twelve hours and more. This I have been enabled to accomplish without a day's illness, one or two slight accidents excepted, and ailments to which before the adoption of my vegetarian régime I was invariably subject are now strangers indeed. The



munificent sum of 5d. per day for three meals has sufficed to keep me in perfect health and thoroughly fit me for the duties of life. This matter affects the really provident poor especially, although even those whose lines have fallen in more pleasant places may well inquire if the vegetarian diet be not worth a thought in connection with the lengthy doctor's bills they are annually called upon to discharge."

— AT the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 17th inst., at 7 P.M., the following paper will be read:—"Brief Historical Account of the Barometer," by William Ellis, F.R.A.S., President. After the reading of this paper the meeting will be adjourned, in order to afford the Fellows and their friends an opportunity of inspecting the exhibition of barometers, and of such new instruments as have been invented and first constructed since the last Exhibition. The Exhibition will, at the request of the Secretary of the Institution of Civil Engineers, be open in readiness for their meeting on Tuesday evening the 16th inst.

— THE TAUNTON AND DISTRICT GARDENERS' ASSOCIATION will hold a Chrysanthemum, Primula, and Fruit Show in the London Hotel Assembly Rooms, Taunton, on Thursday, November 18th, seventy classes being provided, in some of which substantial prizes are offered, as, for instance, in the class for thirty-six Chrysanthemum blooms, eighteen Japanese, and eighteen incurved, for which £5, £3, and £1 10s. are the first, second, and third prizes. The Hon. Sec. is Mr. R. H. Poynter.

— AT a recent meeting of the Linnean Society Mr. F. Darwin read a paper on the relation between the BLOOM OF LEAVES AND THE DISTRIBUTION OF THE STOMATA. "Bloom" on leaves is used by him to mean a coating of minute particles of a waxy character, which is removable by hot water or ether. But gradations occur from a distinct and appreciable greasiness throwing off moisture to such as are easily wetted. A large series of leaves of different groups of plants have been studied by him, and for convenience in the analysis of data he has divided them into four classes. Leaves of Class I. are devoid of bloom on both surfaces, and yield 54 per cent. which have no stomata on the upper surface. In Class II. bloom is deficient above but present below, whereof 83 per cent. contain stomata on the leaves' lower surface. Class III. possesses bloom on the leaves above, but none inferiorly, and 100 per cent. of these have stomata on the upper surface. Class IV. have leaves with bloom on both surfaces, 62 per cent. of them having stomata above. From such analyses and other facts and data given, Mr. Darwin concludes that the accumulation of stomata accompanies that of bloom, and, other things being equal, that it is functionally protective against undue wetting by rain, and thus injury to the leaf-tissue.

— AN exceedingly interesting HYBRID ORCHID flowered last week in Messrs. J. Veitch & Sons' Chelsea Nursery—namely, *Phalenopsis intermedia*, obtained from a cross between *P. amabilis* and *P. rosea*. *P. intermedia* has long been regarded as a natural hybrid between the two species named, and the experiment was undertaken to prove if the opinion was correct. In the admirable paper read before the Orchid Conference, Mr. Harry J. Veitch gave some account of this plant which is worth repeating. After referring to the interest attaching to the plant raised from seed of this cross, he remarked, "The plant had made three healthy leaves, it was well established in a small pot, which, to be more secure from danger, was placed upon an inverted pot that stood in a pan of water. One morning, to the great dismay of Seden, it was discovered that a slug had eaten off two of the best leaves, and would, if not trapped certainly devour the remainder. Anxious to save the treasure, the plant was watched incessantly for hours in the expectation that sooner or later the marauder would make his appearance; to induce him to do so the mass was constantly plunged into water; the repeated duckings had at length the desired effect, the culprit issued from his lurking place, and the plant was saved." This has now flowered, and proves to be the true *P. intermedia*, a good variety of dark colour, the two wings of the lip being of similar colour to the central lobe. Numbers of introduced Orchids are reputed natural hybrids, but we believe this is the first that has been artificially proved, and is, moreover, the first hybrid *Phalenopsis* that has flowered.

— MR. ANDREW SPIERING, nurseryman, Bergedorf, Hamburg, formerly of the Bay of Plenty Nursery, Tauranga, Auckland, New Zealand, sends the following:—"In answer to 'M. C. B.' in the last number of the Journal, respecting a NEW ZEALAND PLANT, I may

inform him that Kowhai-nguta-kaka is the native name for *Clianthus puniceus*, meaning the beak of the parrot, alluding to the shape of the flower; the colonists call it therefore Parrot's Beak, and also Lobster Claws on account of the bright colour of the flowers. *Clianthus puniceus* is considered a native of New Zealand, but I never remember seeing it in its wild state during a stay of seventeen years in the colony, though it is such a remarkable plant that a gardener would hardly overlook the same. When found wild it is on old native settlement, and from this fact it is more likely that the seeds were brought by the Maories from the South Sea Island on their landing in New Zealand; they brought several other roots and seeds with them and are still cultivated. The Kumera or Sweet Potato (*Convolvulus batatas*), Taro (*Caladium esculentum*), the Calabach (*Lagenaria vulgaris*), and perhaps others. The late Venerable Archdeacon Brown, an old missionary, who travelled through the greater part of the Northern Island, told me that he only met the *Clianthus* at native villages or such places that had been formerly occupied by natives. Another native plant of New Zealand called Kowhai is *Edwardsia microphylla*, a tall evergreen tree, very often seen. The colonists call it also the Kowhai Tree; it has bright yellow flowers; the name alludes to the shape of the flowers—a beak. The description and culture of *Clianthus puniceus* (English Glory Pea) is found in most garden books, but the native name is perhaps less known."

— MR. JOSEPH MALLENDER sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS at Hodsock Priory, Worksop, Notts, for February, 1886:—Mean temperature of the month, 34.3°; maximum on the 13th, 48.8°; minimum on the 7th and 27th, 20.7°; maximum in sun on the 26th, 93.9°; minimum on grass on the 27th, 13.0°. Mean temperature of the air at 9 A.M., 33.1°; mean temperature of soil 1 foot deep, 35.7°. Nights below 32° in shade nineteen, on grass twenty-five. Warmest day the 14th, coldest day the 7th. Total duration of sunshine in month, forty-seven hours, or 17 per cent. of possible duration; twelve sunless days. Total rainfall, 0.39 inch; maximum fall in twenty-four hours on the 18th, 12 inches. Rain fell on twelve days. A very cold and dry month, with average sunshine. Both day and night mean temperatures are 2½° lower than any of the previous ten years, and are also lower than in January. In no former year have we had less than 1 inch of rain in February. Vegetation shows no sign of spring growth at present.

#### STRAWBERRY PLANTS IN WINTER.

I HAVE only just observed "A Northerner's" remarks on this subject, page 111, or should have replied earlier. The time I generally stack the plants in the autumn is the first week in November, and they are taken out of the ashes and placed in an upright position some time in March, provided the weather is not too wet nor too severe. I have never yet found them suffer from dryness during this period, because the ashes, as well as the soil in the pots, absorb sufficient moisture to keep them perfectly healthy and fresh. The average rainfall here during the above period is 12 inches, and as the situation is extremely low, damp, and sheltered, the evaporation is but little. I have frequently plunged a few plants in an upright position for experiment, and have never found them after wet winters in such a satisfactory condition as those stacked in ashes. It has been said that plants wintered in this manner lose their roots and are less vigorous, but I cannot say that I have ever found this to be the case. I do not, as a rule, attempt to grow large fruit, but when required find no difficulty in obtaining fruit in April and May from 1½ to 2 ozs. each, which I imagine could not be easily obtained from plants in a weak or rootless condition.—T. CHALLIS.

#### ROYAL HORTICULTURAL SOCIETY'S PROVINCIAL SHOW.

ON Saturday last a meeting of gentlemen interested in horticulture was held in the Town Hall, Liverpool, for the purpose of considering arrangements for the forthcoming Exhibition. David Radcliffe, Esq., Mayor of the city, presided, and in his opening speech said he should be pleased to do all that lay in his power to render the Exhibition of the "Royal" a success. Resolutions were passed for the purpose of getting up the guarantee fund of £1500. To carry out this object a Committee was formed, and the names of some eighteen or twenty gentlemen were enlisted with power to add to their number. The Mayor was elected President, Enoch Harvey, Esq., Secretary, and H. Gaskell, Esq., Treasurer. A very good start was made with the guarantee fund, for the list after being passed round the hall included the names of the majority of the gentlemen present for £25 each. The number of letters read from those not present also testified to the hearty manner in which the visit of the Royal is entertained.

I do not doubt that the "Royal" will cover as much ground in their schedule as they possibly can, but it would be very difficult to form any idea of the extent or even the variety of the Exhibition from the remarks made by Mr. Harvey, who appeared willing to leave this matter in the hands of the officials of the Royal Horticultural Society.

Mr. Harvey spoke in high terms of the Manchester Botanic Society's



Exhibition, which he said had become famed throughout the world. Anyone having heard his remarks about the Liverpool Horticultural Association, and did not know anything about it, might have concluded that the Society was a feeble one. It is impossible for any Association to meet with the good wishes of everyone, but those who have visited the leading provincial shows during the past few years are fully aware that the one held in Sefton Park will compare favourably with any of them, while the spring and autumn meetings are second to none. In seven years, amidst considerable drawbacks, the Association has made for itself a name and taken a foremost place amongst the horticultural societies of this country. I venture to predict that by the continued support that has been so liberally accorded it in the past, that the operations of the Society will be widely extended with beneficial results to horticulture. The Society already possesses a subscription list of nearly £600, and nearly 20,000 people visited the three exhibitions of 1884. There was a slight falling off last year, owing to circumstances over which the Society had no control, but some of these were partly foreseen and therefore did not prove very disappointing. The Horticultural Association may not be worthy of a splendid city like Liverpool, but from year to year the Committee of Management have striven to attain this end, which can only be accomplished by time, patience, hard work, and the loyal co-operation of all who are interested in the progress of horticulture in the district.—A MEMBER.

### TRICHOGLOTTIS COCHLEARIS.

TRICHOGLOTTIS is a small genus botanically related to *Sarcophilus*, comprising about half a dozen species, one of the best known of which is



Fig. 34.—*Trichoglottis cochlearis*.

*T. fasciata*, but even this is seldom seen in gardens. *T. cochlearis* (fig. 34) is one of Messrs. J. Veitch & Sons' introductions, and a pretty addition to small-growing Orchids, and though scarce at present it will soon become a favourite as the stock increases and it is better known. The plant is dwarf in habit, scarcely exceeding 8 inches high as seen at present, and that shown in the woodcut was not more than 6 inches high, with thick slightly channelled leaves arranged in Vanda-like manner on opposite sides of the stem. The flowers are borne three or four together in small racemes springing from the axils of the upper leaves, and are remarkably pretty. The sepals are lanceolate; the petals are broader and rounder at the upper part, both being pure white barred with bright purple—a charming contrast. The lip is curiously hollowed or scoop-like, terminating beneath in a short conical spur, and the form being somewhat suggestive of a shell has given rise to the specific name adopted.

*Trichoglottis cochlearis* is a native of Sumatra, whence it was introduced to Chelsea a few years ago. It flowered in 1883, and was then

named by Professor Reichenbach, who considered it a distinct species. Our figure, we believe, is the first that has been given of this attractive little Orchid.

### MUSCAT OF ALEXANDRIA AND BOWOOD MUSCAT.

I WITH pleasure give your correspondent, "A Reader," particulars respecting the fertilising of these two Grapes. Bowood Muscat was in flower at the same time as the Madresfield Court, so they were fertilised together, using a soft plume of Pampas Grass at midday for six days. This was just at the time the boiler gave way. The Muscat of Alexandria was fertilised with pollen from Mrs. Pince. In previous years I used no other means than shaking the rods, and always had a better set on the Bowood than on the Alexandria.

I must also state that owing to a stoppage in the main pipe, through the pipes leading from the main being fixed wrongly (with a dip instead of a rise) the low places were full of sediment, so that for some time before the boiler gave way we could scarcely keep the water in the pipes in the Muscat house milkwarm. We knew the disadvantage under which the boiler was working, and had made arrangement for the relaying of the pipes as soon as we could do without fire heat. The reason I referred to the two sorts being shown together is that I fail to see the difference in the shape of the berries, as described in the Journal a few weeks ago, and the two as grown here would, I feel sure, be disqualified if staged as distinct sorts. I have been tempted to stage them as such, but having heard so many disputes about the two varieties in question I have really been afraid to do so. I shall be very pleased to let "A Reader" have a few eyes next autumn, and if he will grow them under the same treatment as the Muscat of Alexandria I think he will then agree with me in saying that this so-called Bowood Muscat is earlier, a better setter, and more robust in habit of growth. I may add, that of thirteen varieties of Vines grown here, Bowood Muscat produces bunches as freely as any of them, while only four set better.—G. G.

### ROSE SHOW FIXTURES, 1886.

BAGSHOT Rose Society, at Bagshot, Tuesday, June 29th.  
Farningham Rose and Horticultural Society, at Farningham, Wednesday, June 30th.  
Canterbury and Kent Rose Society, at Canterbury, Thursday, July 1st.  
Reigate Rose Association, at Reigate, Thursday, July 1st.  
Eltham Rose and Horticultural Society, at Eltham, Saturday, July 3rd.  
National Rose Society, at South Kensington, Tuesday, July 6th.  
Cardiff Rose Society, at Cardiff, Wednesday, July 7th.  
Bath Floral Fête and Band Committee, at Bath, Thursday, July 8th.  
Hitchin Rose Society, at Hitchin, Thursday, July 8th.  
Ipswich and East of England Horticultural Society, at Ipswich, Thursday, July 8th.  
Cray Valley and Sidcup Horticultural Society, at Sidcup, Saturday, July 10th.  
Wirral Rose Society, at Birkenhead, Saturday, July 10th.  
East Gloucestershire Rose Society, at Moreton-in-Marsh, Tuesday, July 13th.  
National Rose Society, at Birmingham, Thursday, July 15th.—EDWD. MAWLEY, *Rosebank, Berkhamsted.*

### CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 168.)

#### SPECIMEN PLANTS.

CHRYSANTHEMUMS grown in specimen form find many admirers, and exhibitions would lose much of their attractiveness if well-grown and skilfully trained plants were absent, despite what has been said against them. They are not useful for cutting purposes, as a partial loss of the blooms spoils their appearance, but where they can be conveniently arranged they have an imposing effect. There are two methods of producing specimens; one is growing them to a large size, say 5 feet in diameter, with 200 blooms on each plant: the other is limiting the plants to about 3 feet in diameter, with from thirty to fifty blooms of high-class merit, quality being the first consideration. Plants of this type are much more desirable than those grown for mere size, as the quality of the flowers must then be a secondary consideration, and plants unduly "stretched out" are gaunt and unsatisfactory. Medium-sized and not over-trained plants, remarkable for large deep green foliage and grand blooms, are the most meritorious, and are certainly the best for general decorative purposes.

For producing large specimens cuttings should be taken the first week in December, striking them in the way previously recommended. Take them from the handlights as soon as possible, and arrange them on a shelf close to the glass to keep them sturdy. By the middle of January they will be about 4 inches high, according to the variety, some sorts growing taller and quicker than others. At this stage they should be topped, just taking off the point of each plant. This induces the production of side shoots, which form the basis of the future specimen. As soon as the pots are fairly filled with roots shift the plants into 4½-inch



pots, using soil as previously described, returning them to their former position on the shelf near the glass in a cool house. As soon as the roots reach the sides of the pots place the plants on ashes close to the glass in a cold frame or pit, and protect them from frost, keeping them rather close for a few days. When the weather is favourable ventilate freely, and on fine days remove the lights. Before the plants become root-bound shift them into 6½-inch pots. As soon as the shoots have grown 5 inches long top them again. About the middle of May they should be placed out of doors in an open position safe from strong winds, but where they will have the full benefit of the sun and where they can be covered with some light material in the event of a frost occurring.

About the first week in June the plants will require their final shift into 12-inch pots, and about the middle of this month they must have their final topping. Plunge the pots half their depth in ashes. This prevents the soil drying quickly and keeps the plants firm, as if not secured in some way they are liable to be blown over in exposed positions. Attend carefully to watering, never allowing them to become dry at the roots, or the foliage will not be retained in that fresh healthy condition which is absolutely necessary in well-grown specimens. Syringe the plants in the afternoon or evening after bright days for refreshing them and keeping the foliage clean. If green fly attacks the points of the shoots dust with tobacco powder, and if mildew appears dust with sulphur. Place a stake to each shoot, which prevents their being broken off by wind or accidents. By this time they will be growing freely, and towards the end of July will have a large number of branches, some of them 2 feet long. At this stage they must be got into position. Commence by tying the branches out, having in view the size required, depressing them as may be desirable. Manipulated at this stage the branches bend more easily than they do later in the year, righting themselves much better, and when the plants are in flower bent stems are not so apparent, as training is done at a later stage. Bending the branches induces them to break into growth more freely. The plants make a natural break, forming a flower bud, about the middle of August. The branches produced from this break will each show a flower bud about the middle of September. These are the buds which should be retained for the production of the flowers. As soon as they are large enough to handle all other buds must be removed, retaining only the centre one. When the buds are swelling the plants must have their final tying. Thin stakes painted a colour which most resembles the branches and leaves are the best, as they should not be obtrusive. Secure the branches carefully to the stakes, leaving space for the stems to swell, as they thicken considerably at this stage. When in bloom the plants should be from 2 feet 6 inches to 3 feet high, pot included, the centre of the plant slightly rounded.

The plants should be housed according to the variety, be it late or early. Seven weeks for the late varieties, and a month or five weeks for others, will suffice previous to the time for flowering. Place the plants as close to the glass as possible, giving abundance of air and sufficient fire heat to dispel damp in wet or foggy weather. Feeding Chrysanthemums will be treated in a special article.

To grow specimens of the type represented in the engraving (fig. 35) the cuttings should be struck at the same time as the others, and the plants treated the same except in a few details. The pots need not be quite so large for flowering them in, 11-inch pots being ample size. The plants should be topped three times, the last time about the middle of June. The branches should be tied down a little earlier than for the dwarfed and larger plants, and it is important that the lower parts of the stems be bent, securing them to notched sticks, which can be pressed down from time to time for regulating the height of the branches. Bending and twisting the upper parts of the stems is a great mistake. Not a sign of this should be visible, but each branch should appear to come straight from the centre of the plant in a natural manner, and support a handsome bloom good enough to be arranged in a stand of cut flowers. Many branches are not required when the plants are grown under this system; therefore, at the natural breaking of the plant in August the shoots should be disbudded to the number required, thus causing those retained to be of superior quality, with robust foliage and eventually supporting grand blooms. Feeding and housing the plants should be carried out in the same way as the others.

The engraving is from a photograph of a small yet admirably finished plant grown by Mr. Hall of Brixton.

#### BUSH AND DECORATIVE PLANTS.

Where quantities of flowers are required for cutting, the bush method of cultivation is recommended, especially to amateurs, as a good show of blooms can be had in a small space. The plants not being tall are also well adapted for greenhouses or arranging in

certain positions in larger conservatories. Flowers can be had later in the season by growing two batches of plants. From the middle of January to the same time in February is the best time to strike the cuttings. When the plants are 4 inches high top them for the production of side branches, shifting as required before they are at all root-bound into larger pots, and keeping them stocky in growth; 8-inch and 10-inch pots are large enough to bloom them in, using the largest pots for the strongest growing. One topping is enough for some of the plants, while those required to be grown larger should be topped again when the shoots are 5 inches long. If a later batch of plants is required strike more cuttings in March. When the plants are placed out of doors do not allow them to touch each other, as the more air and space each one has the dwarfed it will be. Great care must be exercised in watering the plants, as much depends upon the quality of the foliage in a decorative point of view.

For the smallest plants three or four branches are sufficient to retain from the first topping, but in the larger size about eight is a fair number and sufficient to produce large bushes. If three shoots are produced from the first topping a dozen will spring from the



Fig. 35.—Specimen Bush Chrysanthemum.

second. Select from these the number required, and tie them securely to stakes. At the natural break of the plants in August many more shoots will be produced; these must be disbudded to the requisite number—about twenty-four on the large, half that number on the smaller plants, and from these numerous side shoots will grow and bloom. In September the flower buds will appear. If a few larger blooms are required take off all the buds except the centre one on each branch, but where a mass of flowers is preferred there should be no disbudding, and the stems will be clothed with flowers in abundance. After the central flowers are cut others are produced by the side shoots in succession. The plants should be housed in batches, allowing some to remain outside till severe frost compels their removal. Plants grown under this method require free ventilation, but not so much fire heat to prevent the flowers damping as those grown to produce large blooms. Place a stake to each main stem, or one strong stake in the centre of the plant, to which the branches can be tied loosely. Where the varieties are naturally of dwarf habit this answers very well; but in the case of taller kinds one stake to each branch makes all secure. Nearly all varieties of Pompons and Aneumone Pompons are well adapted to this method of growth on account of their floriferousness.—E. MOLYNEUX.

#### EARLY TURNIPS.

No time should be lost in making sowings of Extra Early Milan and Early Snowball Turnips in drills 1 foot apart and about 1 inch deep in light soil in a rather dry and warm situation. If clean crisp roots are



wanted do not manure the ground further than giving it a good surface dressing of dry soot prior to sowing the seed and after the ground has been dug and sown. Afterwards rake the soot into the ground before drawing the drills, which should be closed in with the feet after the seed is sown, trodden and raked over so as to present a firm even surface. Early Snowball will make a good succession to Extra Early Milan, which is the best early Turnip in cultivation. After this, late sowings of Early Snowball in proportion to the demand should be made every three weeks up to the end of July, and early in August a good sowing of Orange Jelly, or some other good late variety should be made for winter use. Protect each sowing from the ravages of birds by a piece of garden netting supported by forked sticks, and as soon as the plants are large enough to handle thin them out at 3 or 4 inches apart in the rows; then draw every alternate plant when they have all started well into growth, so as to insure a good even crop. Run a Dutch hoe between the rows, as much with a view to accelerate growth in the plants as to destroy weeds.—H. W. W.

## NOTES FROM MY GARDEN IN 1885.—No. 1.

### GLADIOLUS.

THE whirligig of time has brought round again the season when I have been accustomed to give the results of my experience in my small garden for the past year; and for so doing I ought perhaps to draw up what used to be called an apology, for the area of my garden is so small that many people would wonder how I could possibly dare to say so much upon so small a basis. My chief answer to any who would find fault with me for so doing is that I am continually assured that these notes are of use to others who are similarly situated, who have not large means, and who desire to get as much enjoyment as they can out of their small surroundings, while their recurrence year after year is not so much a repetition as some might imagine it would be. Our seasons are so variable. The character of one year is so different from that of another that even the same things present a different aspect, and their culture reveals some new feature.

The two seasons of 1884 and 1885 will long be remembered for their prolonged drought, and the difficulties gardeners had to master own to it. Few who have not looked into it know how very dry the soil had in many places become, for one season following on another had taken all moisture out of the soil. In light soils more especially had this been the case, while the heavy clay soils cracked so under its influence that it was almost as bad. Hence gardening presented many difficulties. Watering became so absolutely necessary as to absorb a good deal of time, while the hapless condition to which annuals were reduced was very pitiable. Moreover, the greatest amount of watering in no way compensates for the lack of rain. Fortunately here we have no lack of water, but in some places near us it was a very great difficulty. Springs failed, and there was the greatest difficulty in getting water for ordinary uses, so the poor gardens had to suffer.

Among those flowers which did not seem to suffer, but rather rejoiced in the drought, were Gladioli, and following out the plan which I had adopted last year—namely, that of planting them in the part of the garden where the soil was stiffest, I reaped the advantage in the past dry summer. The evidence which I have from many quarters leads me more strongly to the conclusion that a good stiff loamy soil (not clayey), with a good subsoil, and where the water does not remain about the roots, is that in which they most delight. I did not depart from my usual plan of planting, simply drawing drills about 4 inches deep, placing a little sand in the place where the corms were to go, and pressing them down firmly at the time of planting. My beds were all planted by the middle of March, the beds being in a very friable condition. This is a great point with them as with all corms. Where growers are exhibitors the time of planting is a matter of some importance. Where exhibitions are held in the early part of August I do not think that the first week in March is a bit too early for them. The dependance must be most placed on the flowers which bloom early. There are some varieties which will never bloom so early as that, but there are frequently amongst some of the later-blooming varieties a few of which for some reason or other throw up their spikes much earlier than their normal time.

I adopted rather extensively last season the plan of cutting the bulbs in halves before planting, and I am quite sure this may be safely done even with medium-sized corms with great advantage. Of course care is needed that when the skin is peeled off that the corm should not be cut unless two eyes are visible. By this means the number of plants is at once doubled, and my experience of this year goes to confirm the fact that some of the best blooms I had were from bulbs so treated, and that some of the largest roots that I lifted in the autumn were from these cut corms. With regard to the time of lifting there are differences of opinion. My friend Mr. Burrell of the How Nurseries, Cambridge, a careful and successful grower, leaves his roots in the ground to a much later period than I have thought advisable, not taking them up until December.

I took mine up in October, deferring it to later in the month than I usually do. As that happened to be a very wet month the difficulty of drying them was somewhat increased, and in some instances roots had been emitted from the new corm. As this must weaken it, I think that the leaving of them so long is a somewhat doubtful proceeding.

A good deal has been said in favour of Lemoine's new hardy hybrids of *G. purpureo-auratus*, but I cannot say that I am enamoured with them; in fact the more I see of them the less I care for them. But then I look at them with perhaps too much of a florist's eye; but certainly neither in point of colour, size of flower, or length of spike are they to be compared with the hybrid varieties of *gandavensis*. I again left some of these latter in the ground all the winter, but I shall never do so again. I do not think that the frost injures them so much as the wet, while worms of various sorts are injurious to them. There may be some soils and situations where they will answer, but certainly my garden is not one of them. I shall leave those which I have in their place, but shall not add to their number. The opinion that I have formed of them is shared in, I find, by most florists, while as subjects for a mixed border they may be considered suitable.

With regard to the newer varieties, I had several from various sources—Messrs. Soulliard & Brunelet, Mr. Kelway, and some from Mr. Dobree, and the following notes on them may be useful for intending purchasers.

### MESSRS. SOULLIARD & BRUNELET.

*Amitié*.—Plant tall and vigorous. Spike long and close. Flower fleshy rose colour, shaded with straw colour and lined with purple; the edges of the petals are flamed with a deeper shade of rose.

*Daphnis*.—Spike long and compact. Flowers large and well formed: beautiful salmon rose colour, flamed with slaty-violet, with white centre. Very distinct variety, and likely, I think, to be a favourite.

*Ganymède*.—This is a variety which may be pleasing to some, and is distinct, but is not of a colour for which I care particularly—a slaty amaranth; it has, moreover, a peculiarity for which I do not care—viz., having the edges of the petals fringed.

*Gordon Pasha*.—A long and well-formed spike; medium early in flowering; colour a rosy carmine, spotted with bright carmine, having also white lines on the petals. This a very distinct and pretty variety.

*Eugène Souchet*.—A fine spike of well-formed flowers of a beautiful bright rose colour, with large white spots and white lines on each of the petals.

*Stanley*.—A long spike. Flowers well-shaped, large, and open; colour a bright rosy salmon, flamed with a deeper shade of rose; with a rosy yellow spot passing into the ground colour.

There were some others, such as *Ali*, *Medeus*, and *Therese de Vilmorin*, which I did not grow.

### MESSRS. KELWAY & SON.

*Lady Carrington*.—Pale lilac, streaked with carmine, and a white centre. Spike good. Flowers large.

*Marquis of Hartington*.—Purple amaranth, flaked with lilac. Spike good.

*Mr. Struttinger*.—Flesh veined carmine. A pretty variety, with good spike.

*Rev. H. H. D'Ombraïn*.—"Self praise is no praise," they say, but I think that this is one of the best varieties Mr. Kelway has raised. I exhibited a spike of it at Dover, which was perfect, the flowers large and well open; the colour a beautiful cerise, with white throat. Of great substance and perfect shape.

*Calliphon*.—Rose, streaked with a brighter shade of the same colour. Good in shape and substance.

*Mrs. D'Ombraïn*.—White, when shaded quite pure; when unshaded having some lilac markings. A very beautiful flower.

*Admiral Willis*.—Red flaked and shaded crimson, having a large violet carmine spot. Very well shaped, with a good spike.

### MR. DOBREE.

These have been put into commerce by that well-known grower Mr. Campbell of Gourock, whose stands of flowers at the Crystal Palace and South Kensington were so much admired, and who has a very high opinion of some of them.

*F. Boucany Hankey*.—Long spike of bright carmine flowers, with white centre. A very vigorous and hardy variety, and likely to be very useful.

*Herby*.—Long spike of handsome rosy carmine flowers; all the petals lined with white; centre very bright.

*Maggie*.—A very fine and striking flower; white, tinged at the edges with purplish carmine. A fine flower.

*Jane Mary Dobree*.—Fine spike of large well-shaped flowers salmon rose in colour. Flowers of good substance. A very pretty flower.



*Miss H. Pulman.*—White, when shaded pure, but at other times tinged at the edges with purple; narrow purple stripe in the centre of petal.

*Soldier of Bath*—Bright red; centre bright, and streaked with yellow. A showy variety.

I have so often stated what I consider to be the pick of the French varieties that I do not think it necessary to go over the same ground; but I may say that amongst those kinds which I consider to have grown in my good opinion are the following:—Mabel, Tamerlane, Dalila, Léandre, Mademoiselle Marie Verdale, Grande Rouge, and De Lesseps. As the time is now approaching when planting will have to be commenced no time should be lost by those who wish to add to their stock. It would be a good thing if we could see the number of those amateurs who grow this beautiful flower increasing, but I am sorry to say, as far as the south of England is concerned, there does not seem much prospect of it, the principal exhibitors at the Crystal Palace having hailed from the north. I can quite understand why it is. It is a very disappointing class of plants to grow, but it is none the less a great loss to admirers of the flower not to see more of them entered for competition; not indeed that there is much encouragement given to them about London, a paltry prize for twelve being all that the Crystal Palace Co. deems them worthy of, and there is no other place where they can be exhibited for competition. For the encouragement of growers I may say that after thirty years' growth of them I never have exhibited in such good form as I did during the past season.—D., Deal.

### BRUSSELS SPROUTS.

I QUITE agree with "A. L. G." as to the high quality and cropping of Aigburth. "S. B." says it is pretty generally discarded for better and more profitable varieties. I grew last year Aigburth, Daniel's Colossal, and Webb's Matchless, and found all good, but Aigburth produced nearly twice as much in weight and measure as the other two. I note also he states that Reading Exhibition or Gilbert's Universal are far better. I saw some Reading Exhibition well grown at Langford Park, and Mr. Stewart thinks very highly of it. The stems were tall and well cropped, and I quite admit it to be first-rate, but Gilbert's Universal I have never seen nor heard of, and certainly Mr. Gilbert is very quiet about his introduction. If "S. B." alludes to Universal Savoy, I can only ask him why a Brussels Sprout should be pretty generally discarded in favour of a certain Savoy.

"Lathyrus" is quite right in my opinion. A few novelties added to the seed list will always repay the small extra expense, and now and again you get a sterling gem which you would be without for a year or two if you waited till there was a general chorus of approval of it.—H. S. EASTY.

### ROYAL HORTICULTURAL SOCIETY.

MARCH 9TH.

THE first promenade Show of the season was favoured with a bright sunny day, but the wind was so extremely cold that it deterred many intending exhibitors and visitors from attending. Though the display was not an extensive one, it was better than could have been expected, and the groups of hardy flowers formed a most interesting feature. Daffodils were in strong force, but were either obtained from warm early districts like the Scilly Isles, or had been forced under glass. They were, however, very welcome, and the collections of admirably grown Cyclamens constituted an important addition to the Show. The Orchids, which are now becoming so frequent at the meetings, were interesting and beautiful, several rare and well-grown specimens being included in the collections from amateurs and nurserymen, Mr. Smee's remarkable *Cyrtopodium Saintlegerianum* and Messrs. Laing's *Cattleya Lawrenciana* coming in for a large share of attention.

**FRUIT COMMITTEE.**—Present—Dr. Robert Hogg, in the chair; and Messrs. H. J. Veitch, Wm. Denning, G. Norman, W. Warren, John Woodbridge, F. Rutland, J. Ellam, Chas. Silverlock, G. Goldsmith, Phillip Crowley, T. Saltmarsh, G. T. Miles, T. B. Heywood, Harrison Weir, and R. D. Blackmore.

Mr. H. Mitchell, The Gardens, Aberaman Park, Aberdare, South Wales, showed a fine fruit of Pine Apple Black Prince, a fine conical fruit nearly a foot high, exclusive of the crown, for which a cultural commendation was awarded. Messrs. James Carter & Co., High Holborn, were awarded a vote of thanks for a collection of vegetables artificially preserved by a process patented by this firm. They comprised examples of the following:—Apples, Potatoes, Peas, Radishes, Beans, Mangoes, Tomatoes, Onions, Leeks, Capsicums, and Seakale. They appeared to have been coated with wax or something similar, and coloured. They were shown under glass cases, and attracted some attention. Mr. A. Miller, The Gardens, Rood Ashton Park, Wilts, sent an Apple called Rood Ashton Seedling, a flat yellow fruit, rather light, which was passed. It is described by Mr. Miller as "a first-rate culinary variety, an abundant bearer, keeping in good condition until April."

**FLORAL COMMITTEE.**—Present—G. F. Wilson, Esq., in the chair, and Messrs. John Laing, W. Bealby, Amos Perry, G. Duffield, James Walker, H. Herbst, Richard Dean, H. Ballantine, John Dominy, H. M. Pollett, E. Hill, James Douglas, William Holmes, G. Paul, A. T. Lendy, Harry Turner, Henry Cannell, Thomas Baines, and H. Bennett.

A very interesting group of Daffodils and hardy flowers was shown by Messrs. Barr & Son, King Street, Covent Garden, a large number of varieties being included, but a very good representative collection was staged. Some

of the most notable were Achilles, obvallaris, pallidus, præcox, princeps, Ajax, and albicans of the large trumpet forms, *Telamonius plenus* as a double variety. Of the medium crowned type there were Leeds Glow, incomparabilis sulphureus, Leeds superbis, incomparabilis Edward Hart, and others; with the double incomparabilis, Butter and Eggs and Codlings and Cream. The Poeticus section was represented by ornatus chiefly; and the Hoop Petticoat by *Narcissus Corbularia conspicua*, together with numbers of the Tazetta type. The Scilly Daffodils were from Tresco Abbey, the residence of T. A. Dorrien, Esq., and comprised some pretty varieties of cernuus, the Ajax group, incomparabilis, the diminutive minor and nanus. The Tazettas were very beautiful; Bazelman, white, gold cup; Gloriosa, white, orange cup; Aigle d'Or, pale yellow, gold cup; Jaune suprême, pale yellow, orange cup; White Pearl, white, lemon cup; Scilly White, white, cream cup; Grand Soliel d'Or, bright yellow, orange cup; Orientalis, white, gold cup; British Queen, cream, gold cup; Papyraceus, pure white; Imperator, clear yellow, gold cup. All these were very beautiful, and the collection altogether was most interesting. Other flowers in Messrs. Barr's group were *Anemone fulgens* very bright scarlet; *Iris reticulata*; *Allium neapolitanum*, pure white; *Lachenalia pendula*, deep red flowers, very large and drooping, tipped with green; *Chionodoxa Lucilii*, *Freesia Leichtlini* and *refracta alba*. A silver Banksian medal was awarded to Messrs. Barr & Son, and a bronze Banksian to Mr. Dorrien.

Mr. T. S. Ware, Tottenham, had an extensive and beautiful collection of Daffodils in pots, shown with their foliage and having a much better appearance than when the flowers are in glasses or bottles alone. A number of the leading varieties were represented similar to those already enumerated, and in addition there were notable specimens of *Erythronium Dens-Canis purpureum*, *Cyclamen Coum album*, *Galanthus Elwesii*, *Narcissus Bulbocodium citrinus*, *N. monophyllus*, pure white, with grass-like foliage, a charming little plant, and *Crocus Aucheri*, bright golden, very dwarf, and showy. A silver Banksian medal was awarded for the group. Messrs. Collins Bros. & Gabriel, 39, Waterloo Road, S.E., were awarded a bronze Banksian medal for a charming group of Daffodils representing all the sections, the flowers large, clear in colour, and very fresh. They were arranged in glasses with a few Ferns and Palms.

Mr. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, exhibited a plant of the celebrated *Dendrobium nobile nobiliss*, bearing about two dozen flowers and buds, the former large and richly coloured, the crimson tint running deep into the sepals and petals; a plant of *Dendrobium crassinode album*, with white sepals and petals and a yellow lip; and the fragrant *D. heterocarpum Ellaianum*, a variety with a yellowish lip. *Ceologyne cristata maxima*, a very handsome variety, was represented by a plant with a spike of six flowers, for which a cultural commendation was awarded. F. A. Philbrick, Esq., Q.C., Oldfield, Bickley (gardener, Mr. Heims) was awarded vote of thanks for a plant of *Lælia lilacina*, a supposed natural hybrid between *Cattleya (Lælia) crispa* and *Lælia Perrini*, collected and imported in 1883; it differs in the lip from *Lælia Pilcheri*, and is intermediate in the period of flowering between the two supposed parents. The sepals are pale blush, the lip white in the throat, tipped blush and streaked with crimson. The plant was very healthy and had ten flowers.

In addition to the *Cyrtopodium* certificated, Mr. Cummins had a fine variety of *Odontoglossum maculatum* with large flowers, the petals and lip very broad and of good colour. Mr. Clarke, Eversleigh, Herne Hill, was awarded a vote of thanks for *Dendrobium Devonianum*, bearing a growth forming quite a wreath of flowers. A cultural commendation was adjudged to Messrs. F. Sander & Co., St. Albans, for plants of *Ceologyne cristata maxima*, a variety with extremely large flowers. Messrs. Thomson & Son, Clovenfords, showed flowers of *Dendrobium Lechianum*, the beautiful hybrid of the Ainsworthi type. Messrs. J. Laing & Co., Forest Hill, showed two plants of *Cattleya Lawrenciana*, bearing three flowers each, the sepals and petals pale purplish crimson, the lip extremely rich crimson, very beautiful and something of the C. Skinneri character. *C. Trianae Laingi* is a handsome variety with broad deep blush petals and an open crimson lip. A deeply coloured variety of *Dendrobium crassinode* was also sent by the same firm. C. L. N. Ingram, Esq., Elstead, Godalming, sent a variety of *C. Trianae* called Ingrami, the petals broad, nearly white, with an intense crimson lip, yellow in the throat.

Extensive groups of Cyclamens and Primulas were contributed by several firms. Mr. B. S. Williams, Upper Holloway, had a particularly fine collection of varied and highly coloured flowers. The St. George's Nursery Company, Hanwell, and H. Page & Son, Teddington, also had large groups, for each of which a silver Banksian medal was awarded. Messrs. J. Carter and Co. showed fourteen baskets of Primulas, representing their choicest strains of these popular plants, white, crimson, blue, mauve, rose, and purple; the flowers large and the colours bright. A vote of thanks was accorded. Messrs. H. Cannell & Son, Swanley, exhibited flowers of the pretty white *Begonia nitida alba*, the blush white *nitida*, and the deep red *gigantea rosea*, all useful winter flowering varieties. A plant of *Cyclamen giganteum*, improved, a variety with enormous flowers, was also shown. Mr. W. Bull, Chelsea, had a plant of *Cattleya Lawrenciana* in flower, and an elegant foliage plant, *Cupania grandidens*, with pinnate leaves, the pinnæ deeply sinuated. A vote of thanks was awarded for seven plants of *Lilium longiflorum floribundum*, with three to four pure white fragrant flowers each. A *Cineraria* was shown by F. Braby, Esq., Bushy Lodge, Teddington (gardener, Mr. Clinkaberry), with flowers of two distinct colours on the same plant, some being rosy crimson and the others rich purple. Mr. J. James, Woodside, Farnham Royal, had a box of richly coloured *Cineraria* flowers, large and handsome, as the blooms of his well-known strain always are. G. F. Wilson, Esq., F.R.S., Weybridge, was awarded a vote of thanks for a potful of *Galanthus Imperati* with large flowers. Mr. F. Crute, Waltham Abbey, Wood Green, sent samples of his concave flower-pot and cup. Mr. A. Smith, Reading, had specimens of ornamental tiles for window-boxes, and Messrs. Foster and Pearson, Beeston, Notts, showed a patent metal ventilator with a hinged door, to remain open or shut.

### CERTIFICATED PLANTS.

*Cyrtopodium Saintlegerianum* (G. W. Cummins, gardener to A. H. Smee, Esq., The Grange, Wallington).—A wonderfully strong species from Paraguay with cylindrical tapering pseudo-bulbs 2 feet to 3 feet long, with stout panicles rising from the base 4 to 5 feet long. The flowers are about 2 inches across, the sepals yellow, barred and spotted with reddish brown; the petals



slightly broader, yellow, with a few spots at the base; the lip is similar with two wings curving round the column of a reddish tinge, and the pedicels are also reddish, but those and the main peduncles being subtended by lanceolate bracts, greenish, with reddish bars and streaks.

*Narcissus Bulbocodium citrinus* (Ware).—A charming variety of the Hoop Petticoat Narcissus; the cup  $1\frac{1}{2}$  inch in diameter and  $2\frac{1}{2}$  inches long, of a delicate pale yellow tint.

*Begonia gigantea rosea* (H. Cannell & Sons).—One of the semperflorens type, with large leaves and dense panicles of bright coral red flowers very rich in the bud state.

SCIENTIFIC COMMITTEE.—F. Du Cane Godman, Esq., in the chair.

*Colletia horrida (speciosa)* on *C. bicktonensis*.—Dr. Lowe exhibited specimens of a shrub of *C. bicktonensis* with dimorphic branches, the smaller kind growing on the larger, differed from *C. horrida* in having the branches flattened and not rounded, as in the latter. This was also the case of the specimen exhibited at the last meeting; and Dr. Lowe raised the question whether the growth of this small form of *C. bicktonensis* had not been mistaken for *C. horrida*. It is requested of persons cultivating this plant to examine them and report to the Secretary as to the frequency of the true *C. horrida* growing upon flattened *C. bicktonensis*; also, if *C. bicktonensis* with broad flat branches is ever known to grow upon a shrub of *C. horrida* with round branches. Specimens will be very acceptable. He alluded to an ancient Italian painting of "the Crown of Thorns" having this sport depicted in it.

*Melanthus major*.—Dr. Lowe showed a plant completely killed by the late frost, but which was in blossom at the same period of the year of 1885.

*Nematoid Worms in Cucumbers*.—Mr. Michael gave a very interesting communication upon the great injury occurring to Cucumber plants in Cornwall. In a collection grown largely for the London market plants were continually being struck down. A careful examination of the earth proved that the source of the mischief was entirely due to these worms. On examining the sound parts of the roots where the disease was just commencing, he discovered cysts of eggs deposited in those parts, the female having burrowed more deeply into such tissues to provide food for the young ones. Mr. Murray said that he had made similar observations in conjunction with Mr. Carruthers, and they had come to precisely the same conclusion. Other animals, such as acari (*Serraton rostratus*), as well as *Rhizohyphus*, were present; but these were not the cause of injury, but only followed on the decayed condition induced by the nematoid worms. He suggested sulphur and lime should be applied round the roots, and that all affected plants should be burnt.

*Orchids, monstrous*.—Mr. O'Brien showed a specimen of *Odontoglossum crispum*, and Mr. Smee brought a blossom of *Coelogyne cristata*; the latter was a fusion of two flowers, but one was represented solely by a labellum and a bract. They were referred to Mr. Ridley for further examination.

*Camellias and Frost*.—Mr. O'Brien, commenting on the leaves sent by Hon. and Rev. Mr. Boscawen to the last meeting, remarked that he had observed exactly the same result to accrue from scorching by the sun; that the young mature leaves resist it much better than the old mature leaves, though if immature they suffer to a proportionately greater degree.

*Cineraria Dimorphic*.—Mr. F. Braby of Bushey Lodge, Teddington, sent a plant having half the flowers crimson and the other half deep mauve; it was a seedling. Mr. Lynch exhibited blossoms showing somewhat different character in the central and terminal flowers to the lateral ones, not only in being larger, but with a different disposition of the ray petals.

*Abutilon igneum*.—Mr. Lynch exhibited sprays of the South American species with dark purplish flowers.

#### GLASS COVERS FOR WALLS.

MANY country houses are fitted with double glass window frames for winter protection, and none situated in the north of England and Scotland ought to be without them. The past few days of storm (1st to 3rd March) give proof of this. The wind howl, and the snow-drifts are deep, but inside the double glass the sough of the wind in the trees is scarcely heard, and the fire does not run up the chimney. Your notice, with sketch, of the "Darlington" glass wall covers induces me to suggest the utilisation of these protective window house frames during summer in ripening Peaches, &c. Some years ago I put outside glass frames into the windows of my three public rooms—seven windows in all. The frames are entire (without break), and are caulked round with a soft packing so as to be tight.

From March to November these are placed in a light permanent frame, in front of and within 3 feet of a wall of Peach trees, and this with complete success. The window frames being entire, as stated, ventilation is obtained at the bottom bar, which (about 9 inches deep) admits of a slot with closing lid about 30 inches by 6 inches, which is sufficient for room ventilation in winter, and for the Peaches in summer with an additional arrangement below the bar upon which the glass frames are set. As these window frames require removal in summer at any rate, by this plan of stowing them away they yield me fine crops of Peaches of the early sorts. I find Early York will not do, but Small's Mignon and the Sulhamstead are charming.—EAST COAST SCOT.

#### BIRMINGHAM AND MIDLAND COUNTIES GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

THE first lecture in connection with this Association was delivered on Wednesday evening, March 3rd, at the Society's rooms, Albert Chambers, Paradise Street, Birmingham, by A. W. Wills, Esq., F.C.S., one of the Vice-Presidents, the chair being occupied by Mr. W. B. Latham, Curator Botanical Gardens, Edgbaston, about 120 members being present. The Lecturer, who is an enthusiastic admirer of the various forms of Nature, after pointing out that the principal object of the Gardeners' Mutual Improvement Society should be to stimulate its members by intercourse and study to acquire a better knowledge of the wonders of creation into contact with which

they are brought by their daily work, proceeded to show what are the chief subjects comprised in the study of botany. He pointed out that this may be made one of the most uninviting or one of the most fascinating of pursuits according to the manner in which it is approached, and as an illustration of one of its aspects which lift it into the region of poetry and romance, he chose the topic of "The Mutual Relations of Flowers and Insects," the object of the speaker being to prove how and why it is that but for the co-existence of insects and their services in the fertilisation of flowers the glory and the grace of the plant world would vanish from the face of the earth, and all the myriad forms of beauty which adorn the forests of the tropics and the moorlands, woods, and meadows of temperate regions would disappear, so that only a few tribes of plants, all bearing sombre and inconspicuous flowers, would survive, while all colours and scent and variety of form would cease to exist. In tracing this subject, Mr. Wills dealt first with the structure of a typical and perfect flower, and the functions of the parts concerned in reproduction, and then, after showing how the visits of insects are the chief agency for insuring fertilisation, proceeded to show how Nature encourages cross-fertilisation and discourages self-fertilisation by a variety of general arrangements, as well as by special contrivances. These latter reaching their climax in the structure of Orchids. The address concluded by a brief reference to the connection of this subject with that of natural selection. It was illustrated by a large number of illuminated transparencies, mostly drawn from nature by the Lecturer.

Mr. Latham, in moving a hearty vote of thanks to Mr. Wills for his very able and interesting address, said he thought that he had dealt with a subject of the greatest importance to the gardening profession, more particularly to its younger members, whom he advised to try and acquire a thorough knowledge of the parts and functions of flowers. The resolution was carried unanimously, after which the Chairman drew the attention of those present to the subject of the next lecture, to be delivered by Professor Hillhouse, on Wednesday evening, March 17th—namely, "The Scientific Value of Gardeners' Experience," which he had no doubt would be very interesting, and he hoped to see as good an attendance of members as on the present occasion. The meeting then terminated.

#### MUSHROOM-GROWING ON OUTSIDE BEDS.

We are well into the ninth week of frost, more or less. On Monday we were visited by a very severe snowstorm, and I may say without exaggeration that at present frost and snow reign here supreme, but it is well known that cooks have little sympathy with us. At the present time I have seven of these worthies to supply, and of course they want Mushrooms as often as they can get them. March 4th was the packing day, and we have been well supplied all through the winter from the Mushroom house, but to-day we could not get enough by 4 lbs. The sun being shining brightly, I determined to try the outside beds. The first and only bed we opened was a round one, and about the size of an ordinary haycock, and to my great delight we obtained the 4 lbs. of such Mushrooms, thick in the flesh and red in the gills, and doubtless superb in flavour. Does not this conclusively prove what Mr. Wright states in his book, that Mushrooms can be grown outside all the winter? The great secret to success in growing Mushrooms is always to use fresh spawn—namely, that which you can break with your finger and thumb. If a hammer has to be used to break the spawn the vitality has departed. This I have proved often.—R. GILBERT, *Burghley Gardens*.



#### HARDY FRUIT GARDEN.

**KEEPING FRUIT.**—Some complaints have been sent to us of the premature decay of fruit in a fruit room in which fruit has been kept—and kept well for many years. Such complaints after so favourable a season as the last was for the perfect development and ripening of fruit caused some surprise, and a little inquiry showed that neither fruit nor building were in fault, the mischief being clearly traceable to ignorance and carelessness on the part of the person in charge of the fruit. At this late period of the season the only advice that is likely to be useful, is to suffer no decaying fruit to remain among that which is sound, to avoid handling fruit more than is absolutely necessary for inspection, to keep out frost and dampness, and to have the place of storage sufficiently ventilated to prevent any internal accumulation of moisture.

Experience and sound judgment are required to enable one to decide when fruit should be gathered from the trees. There can be no doubt that much fruit is spoiled by being gathered too soon. The falling off the tree of two or three, or a dozen Apples or Pears, is not to be regarded as a sure sign that all the fruit is ready for gathering. To stroll into a garden and pull a fruit may read well in a popular novel, but there must be no pulling by fruit-growers, or we may have a wholesale destruction of spurs and spoil both trees and fruit. The best test is to lift or turn the fruit gently upward, and if then the stalk parts readily from the branch the fruit is ready for gathering. Carelessness in gathering and storing is too frequently the cause of premature decay. The fruit is thrown into baskets, out of which it is shot hastily into bins or upon shelves, much bruising is inevitable; bruised fruit soon becomes rotten, and then we are told that "fruit does not keep well this season," or that the fruit room is at fault.



Surely it is patent to everyone that fruit is easily bruised, and it requires no mighty intellect to see that bruising may be avoided by the exercise of due care.

For ordinary purposes a single fruit room is sufficient, but for large fruit gardens we would always have two rooms, one for Pears and the other for Apples, and there should be means provided for raising the temperature of the Pear room at will. In most gardens this might easily be done by a 4-inch flow and return pipe connected with the nearest boiler and controlled by a valve. Many of our mid-season and late sorts of Pears do not ripen well in a cold fruit room, but in the temperature of a sitting room they soon develop sweetness, richness, and aroma, and such a temperature is easily imparted to a Pear room.

#### FRUIT FORCING.

**VINES.**—*Early-forced House.*—Early Grapes that have passed the stoning process will be greatly benefited by having liberal supplies of tepid liquid manure given to the inside borders. Great advantage also results from syringing the paths, walls, and mulching over the roots with clear liquid manure towards evening on fine days, or an hour or two before night ventilation is given before dark. After the stoning is completed a little ventilation at the top of the house will prevent the deposition of moisture on the berries during the night. The bunches should be examined for the last time, and if any small stoneless berries remain remove them at once, as nothing detracts more from a well finished bunch of Grapes than these imperfectly fertilised berries. Lateral growth should be encouraged all over the house by pinching the points out of the strongest only, tying those down to the trellis, allowing the weakest to find their way up to the glass, when they should be stopped and tied down so as to prevent the foliage touching the glass. Commence ventilating early, little and often through the early part of the day, and reduce upon a similar principle, and finally closing in time to run it up to 85° on bright afternoons.

*Succession Houses.*—Attend to disbudding, tying, and stopping in succession houses, keeping the thinning both of bunches and berries well in hand, commencing with free-setting varieties, but Muscats and other shy-setting sorts should be left until the best berries take the lead. Keep up a steady circulation of air where houses contain Grapes in bloom, impregnating shy setters when the maximum temperature is reached, taking pollen from Hamburgs for fertilising Muscats. Shy setters have the stigmas coated with glutinous matter when in flower, and rarely set well unless it be removed daily with a camel's-hair brush.

*Late Houses.*—Former instructions having been attended to, the Vines will now be moving. Ply the syringe freely several times a day, give the inside borders good waterings with warm liquid manure, and endeavour to secure an even break and elongation of the bunches by closing with a humid atmosphere at a temperature of 75°. Strong young canes that do not always break evenly should be kept in a horizontal position until all the lower buds have started, but old Vines on the spur system do not require this attention.

*Fruiting Vines in Pots.*—Keep these well supplied with good stimulating liquid, make additions to the top-dressing and mulching, and allow the laterals to spread over all the uncovered parts of the trellis; but nothing is gained by crowding the foliage. It should have full exposure to light and air.

**PINES.**—It is usual at the beginning of this month to start enough suckers for the prospective requirements, 5 and 7-inch pots, according to the size and variety, being used, and the suckers potted firmly in good loam in a moderately moist condition, and, without being watered, plunged at once in a fermenting bed previously prepared, having a temperature of about 95° at 9 inches beneath the surface. In ten days or a fortnight roots will be appearing at the sides of the pots, when water should be administered, and as often as occasion requires afterwards. Owing to the moisture arising from the fermenting material but little syringing will be required, but with increased light, heat, and sun, and growth in the plants, it will be required more liberally. The temperature should be maintained at 60° at night and 70° in the daytime, a slight shade being applied for an hour or two at midday when sun is powerful, closing in good time so as to make the most of the sun heat.

*Plants Wintered in Small Pots.*—Those that have been wintered in 7 or 8-inch pots should be shifted during this month into pots 10 or 12 inches in diameter, in which they produce fruit during next autumn and winter months. The rough part of fibrous loam only should be used, the pots being perfectly drained, scattering a small handful of wood ashes over the drainage to prevent the inroad of worms and a few half-inch bones, some of these being mixed with the turf in potting. In potting be careful to avoid having vacuous places, the compost being put in carefully and rammed down so as to form a compact mass with the ball. The plants after potting should be placed in a brisk heat about the pots of 90° to 95°, growth being encouraged under favourable external conditions in a temperature of 65° to 70° at night, and 75° to 80° during the day, with a rise of 5° to 10° from sun. Sunny weather should be taken advantage of in every department to close early under the sun's invigorating influence, being liberal in syringing or sprinkling lightly overhead all the plants excepting such as may be in flower at the time.

**STRAWBERRIES IN POTS.**—First dishes are much later than usual, the season not having been propitious for early produce. Keep constant supplies in readiness to take the place of forward crops. All the late varieties will be the better of being surface-dressed, and arranged in pits well up to the glass so as to prevent the foliage drawing, and in these with free ventilation they will develop strongly. Henceforward fine

fruits are expected, and to insure well-set evenly shaped berries fertilisation should be carefully performed in the middle of fine days. Remove all the upper flowers from the flower scapes, leaving from eight to a dozen of the finest formed fruit on a plant, and in the case of the large-growing kinds a further reduction may be made. A little artificial manure (of which there is now so many valuable preparations that for obvious reasons no one can especially be named) may be scattered over the surface of the pot and watered with a fine rose when the soil is in a fairly moist condition. Liquid manure from soot and cow manure made fresh is a capital invigorator. Be careful not to over-water, especially in dull weather, guarding equally against dryness, though a supply of water ought always to be needed before it is given, and then thoroughly. Assist plants swelling off their fruits by closing early so as to raise the temperature to 85° or 90°, and syringe overhead on bright days. Avoid giving a check to fruits developing towards maturity by lowering the temperature suddenly; but moisture should be gradually withheld with a view to insure flavour.

## THE BEE-KEEPER.

### MARKETING HONEY.

THE question is often asked, What is the most profitable form to produce honey for sale, comb honey or honey out of the comb?

The answer depends in each particular case on the market the seller wishes to supply. Some customers will only buy comb honey, others prefer run or extracted honey, and the adage holds true in this as in every other case, that we must cut our coat to suit our cloth, and that where there is a ready market for comb honey we must manage to produce, or, to speak more accurately, get our bees to produce honey in the most convenient form—sections. Honey may be divided into two classes, comb honey and liquid honey, and these again will be split up into two divisions, sections and super honey, extracted and run honey.

Within the last few years there has been a considerable fall in the price of all kinds of English honey, and in a former article we endeavoured to account for this, and so we shall take for granted the fact, that though in some places there has not been so great a fall in price as in others, still, however much disagreement there may be as to the causes, there can be none as to the effect.

In the report of the Lancashire and Cheshire Association for 1884, the statement is made that one member sold 8 cwts. of extracted honey at 10½d. per lb., and that another member sold 400 lbs. at 1s. 2d. to 1s. 6d. per lb., and Mr. Carr goes on to say that, "The idea of selling honey at the very low prices talked of in some quarters appears to only cause amusement among members as far as I could gather."

During last year several tons of English honey changed hands at £60 per ton, which is not quite 6½d. per lb., and some hundreds of 1 lb. sections were sold at prices ranging from 6s. to 9s. per dozen. Supers of honey fetched rather less, owing to the difficulty of breaking bulk, and the loss from waste, &c., while the old-fashioned run honey taken from skeps, and not extracted, was sold for about 5½d. per lb.; so that in discussing the question of marketable honey we may confine ourselves to section honey and extracted, and on the whole we should say that the latter is the more profitable to the bee-keeper, though there is perhaps less trouble in getting section honey.

If he can sell his sections as soon as they are filled, or at least has only to keep them for a short time, the bee-keeper will not have the trouble of extracting; but when sections become granulated there is a difficulty of disposing of them, and even if they are melted and the wax strained off, the honey is not as good in quality or appearance as if the honey had been extracted.

To keep sections from granulating is no easy task, as the temperature has to be kept up to about 70°, and even then a slight draught from an opened door will cause them to granulate in a few minutes.



If extracting is carefully managed there is no danger of robbing, either by the other bees in the apiary or by stranger bees. All combs should be extracted in a room or shed, so that the bees cannot get in. When we are extracting from frames we take out two or more frames, empty them by means of the extractor, and then go to hive No. 2, remove those frames that are full, and in their place put the frames belonging to hive No. 1, and when we have finished extracting the empty space in hive No. 1 is filled up by the frames we took out of the last hive. By this means the bees are least disturbed, and we have never had any robbing. In extracting sections we remove the full crate, and place an empty crate or cover with carpet. Having brushed off as many bees as we can, we take the full crate into a room or shed, brush off any remaining bees into an empty skep or box, and after extracting the sections replace them in the crate, and replace on the hive, and if we are careless enough to spill any of the honey swab it up with a wet cloth. The bees having the empty comb will soon fill it again if there is any honey coming in, and so we can use the same sections over and over again.

Fortunately the public are beginning to understand that granulation is more or less a proof of genuine honey, though there is now said to be a process by which even granulation can be imitated, and that a large quantity of spurious granulated honey is now being placed in the market.—A SURREY-SHIRE BEE-KEEPER.

#### BEE DIFFICULTIES—PREVENTING SWARMING.

I SHOULD be grateful for information and advice on all or any of the following points:—I have a bar-frame hive taking ten frames at right angles to the entrance. I put a swarm into this hive in June, 1883. The next season I put on a crate of twenty-one sections, but the bees refused to enter them, and a swarm issued. Last May (1885), the bees being very strong, I again tried the super, when they entered it and commenced working; but in about ten days a large swarm left the hive, followed twelve days later by a cast, both of which I put into straw skeps. The bees in the bar-frame hive are very strong and wintering on seven frames, a dummy taking the place of the three removed. What should I do during the coming season to prevent swarming and enable me to obtain the best yield of honey? I think of having another bar-frame hive this spring, and should like to know the best one to adopt and the mode of working, so as to obtain the greatest honey yield. Also, which do you consider is the best of the many smokers, honey extractors, and works on bees (cheap) now advertised so largely? Only having limited time and means for devoting to my bees, plain, practical, simple, and economic advice on these subjects will be greatly esteemed by—J. C.

[There are two reasons, either of which may account for the non-success following the efforts to get the stock to enter the super in 1883. If the swarm with which the bar-frame hive was stocked in 1883 was a first one, the queen, in all probability, was an old one, and perhaps so old as to be unable to keep the stock filled with brood, and this might have been a factor in causing the issue of the swarm in 1884. Again, if the sections were placed too late—even if the queen was young and in full vigour—preparations might already have been made for sending forth a swarm, and when this is the case a bee-keeper can only blame himself, and hope that, taught by experience, he may another year be more successful. To prevent swarming queens must be young and supers placed in the nick of time. In 1885, indeed, the first of the above-mentioned causes was absent, for the queen was evidently, judging from the antecedent history of the stock, young—scarcely a year old; but even then there was only partial success, and the reason of failure was this:—When bees were working freely in the crate of sections first given them another crate should have been added, either being placed above or below the former, and thus crate added to crate, room always being provided in advance of the requirements of the stock. As each crate is completed it should be removed and another added, until the judgment of the bee-master tells him that the season is drawing to a close, when all his efforts must be directed to getting the sections already partially filled completed; and even if at this time the bees are a little short of room there is not much—at such an advanced period—likelihood of a swarm issuing. In the cases above, however, not only a swarm, but a cast issued by reason of insufficient room being provided at the necessary time, but even then with judicious management a partial success might have been achieved. If when the cast came out it had been hived in the usual manner, placed on a temporary stand as near as possible to the stock from which it issued for four or five hours, and then thrown back on to the front of the parent stock, the cast would have quietly entered the hive, and in nine cases out of ten often remained working in supers until the end of the season. This is worth a trial, for there is little trouble attending the operation and no skill is required. Let a trial be made if a swarm and cast again issues, and it may be added if the cast should issue again the next day a similar method of procedure must be adopted with the certainty of final success. If a cast returned should issue again, it shows the intention of the stock to throw a second

cast, and this must in all cases be prevented. A second cast is certainly detrimental to the strongest of stocks and of little value to the bee-keeper.

Again, this year the bar-frame hive contains a young queen not one year old, the one straw into which the first swarm was hived a queen not more than eighteen months old at most, and the other straw into which the cast was hived a queen a little younger than that of the bar-frame hive, so that so far as young queens are conducive to success in the production of comb honey in opposition to increase, the circumstances are favourable. If, then, super honey is required, all the efforts of the bee-master must be exerted to prevent swarms, not by cutting out queen cells and other such means, but by preventing preparations being made for increase by a judicious supering management, as before explained. But let it always be remembered that one day's delay in placing a super when a stock requires extension may cause queen cells to be commenced, and if this is the case it is better either to take at once artificially, or to allow one to issue naturally, return the cast, manage the swarm so as to have it ready for supering, for which, if it comes out in good time, it will be ready long before the close of the honey flow, and thus have both stock and swarm at work in supers. For certainty, however, of getting super honey year by year in greatest quantity at the least expenditure of time and trouble, prevention of swarming is the most reliable system of management.

The requisites for a good bar hive are four:—1, Good workmanship. 2, Sound wood. 3, Capacity to contain sixteen standard frames at least. 4, Adaptability for filling 100 1-lb. sections. From hives of ten frames only great results can be obtained, and in my own apiary ninety 1 lb. sections have been taken from one such, but the larger size is preferable. Dark walls and frames at right angles to the entrance seem to be, as far as my experience goes, the best, but although it is well in making or purchasing a new hive to get a good one, it is not the hive but the owner's management which causes success or disaster. If less dependence was placed on hives and more on management, profits would be greater and expenses less. The Bingham Smoker is a good, but I am unable to say which extractor has the preference, but for one who desires "plain, practical, simple, and economic" advice there is apparently no necessity to invest in an extractor at all; but the point is one which "J. C." can well decide for himself. Of books none is more suitable for anyone desiring to get good sound practical knowledge than the "Handy Book of Bees," by the late A. Pettigrew; "Manual for the Many, Bee-keeping," by the late J. H. Payne; and from the books of the more advanced school I am quite unable to pick out the one likely to do least mischief.—FELIX.]

#### TOMTITS AND BEES.

I can fully endorse what "G. H. P." says relating to the blackcap tomtit destroying the honey bee. My father has kept bees for the last forty years, and during the winter they are very troublesome. It is a custom of his to reduce the entrance of the hive in the autumn with a piece of cork cut to fit the aperture, so that the bees can better defend themselves against the attack of wasps. The corks are in many cases pecked half away by the tomtits to disturb the bees, and as soon as one shows himself he is caught, and as "G. H. P." says, carried to the most convenient place. I have even seen the tomtit catch the bees when they have been at work at the Cherry blossom in the spring.

The best mode of catching the tomtit is with the small steel mouse trap fastened on a stock with a screw, the stake driven in the ground so that the trap is on a level with the alighting board.—W. L. B.

"G. H. P." (page 162) asks if other bee-keepers have found the tomtit destructive to bees. I have many times seen "Master Tommy" behaving himself precisely in the manner he describes, and have long looked upon him as an enemy to my bees. I do not know if swallows are generally considered to be destructive. I saw them last summer skimming among my hives when the bees were on the wing, and though I did not see the fatal snap I have a very strong suspicion that they were reducing the population of my stocks.—T. S.

#### TRADE CATALOGUES RECEIVED.

Waite, Nash & Co., 79, Southwark Street, London, S.E.—*Wholesale Catalogue of Agricultural Seeds, 1886.*

Samuel Shepperson, Prospect House, Belper.—*List of Florists' Flowers.*



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.



Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Books (M. Spiering).**—We are not aware that an edition of "Paxton's Botanical Dictionary" has been published since the date you name. Probably the last edition of "Johnson's Gardener's Dictionary," published in 1832, and comprising all plants introduced into gardens up to that time, may suit you. It can be obtained at this office, price 7s. 6d., post free to Hanover for 8s. 3d.

**Glasses for Roses (Juvenis).**—We are not able to say where the "cheapest glasses" of the kind figured in an advertisement in the "Rosarian's Year Book" can be obtained. Possibly the advertiser might give you information, his main object, we presume, being to sell his Rose holders, and hence he shows their adaptability for the glasses in question for room adornment, as well as for tubes for exhibiting blooms.

**Soil from Violet Bed (J. T. S.).**—If the soil dried in the bed in summer into any such hard lumps as we received, Violets could not possibly thrive in it. Such heavy adhesive clayey loam could only be added with advantage to very light dark-coloured soil rich in humus, of which the sample you have sent is destitute. Neapolitan Violets will not grow freely in heavy soil that is greasy when wet, and bakes like bricks in dry weather.

**Charcoal (J. P.).**—Wood burned as you suggest can hardly be described as a "substitute for charcoal," for it will be genuine charcoal, and as good as you can obtain elsewhere for potting purposes. It is very useful indeed for mixing with soil for most kinds of plants, and none the worse for those of a softwooded nature if previously soaked in liquid manure and partly dried before using. It should be broken into small particles, mixing one handful with twenty of soil, and potting firmly. Larger particles are excellent for drainage.

**Rhodanthes in Pots (Old Subscriber).**—Some of the beautiful examples sold in the market are produced by sowing seed in 5-inch pots, thinning out the seedlings before they touch each other, so that those remaining are not more than an inch apart; others are raised by transplanting sturdy seedlings about the same distance asunder, growing them near the glass in warm light pits. Great care is requisite in watering, and it is not a good plan to sprinkle the foliage, especially early in the season.

**Layering Lapagerias (D.).**—The whole of the moderately firm portions of the shoots are pegged in the soil, about half the length of each leaf protruding above the surface, producing an appearance as if a number of leaves were inserted in the bed. This is done in early autumn, and young growths push in the spring. You can layer some now, and roots will be emitted in due time, whether the shoots are notched or not, in a bed of sandy peat kept regularly moist.

**Marechal Niel Rose Unhealthy (A Young Gardener).**—You appear to have injured the Rose by "steaming" the house, but why you steamed it to such an extent we are at a loss to know. Generally speaking, it is unwise to steam houses containing flowering plants, and especially at this season of the year. Time and judicious management may perhaps bring improvement. You say nothing about the age or size of the Rose, how it has been pruned, or whether it is in a pot or planted out; therefore we are not in a position to advise you how to proceed in its management.

**Calendarial Notes (R. Savill).**—Most assuredly our notes are specially written every week by expert cultivators in actual practice, and we do not adopt the method, which is of no unknown, of dishing up old calendars. We have plenty of Peas above ground that have been dusted with soot, and we have sown Carrots and Radishes, also planted Potatoes, close to a wall facing south, where protection can be easily given, and we expect good crops in due time. No one, we presume, would either sow or plant with the ground covered with snow.

**Marechal Niel Rose (E. S.).**—If you wish to have all the blooms possible irrespective of the after condition of the plant you have purchased, only remove the miniature tips of the shoots, and as these are "strong and well ripened," most of the prominent buds will in all likelihood produce a bloom, and if the roots are active in good soil, and well supplied with water the flowers may expand; but in all probability the plant would be so exhausted as to be of little further use. The best plan to adopt for inciting growth after flowering would be to cut down the stems to the best wood buds you can find below the parts that have produced flowers. If the permanent well-being of the plant were the first consideration we should reduce the shoots now to considerably more than half their length with the object of promoting strong growth.

**Protecting Roses (Merchant).**—Wips of hay or anything of that kind placed around and round the lower parts of the branches are very useful in severe weather, but they must be removed as soon as the frost departs. The browning of the ends of the branches is of no consequence, as this will be out off in pruning. If the weather is mild towards the end of the month shorten all the shoots made last year to within about 3 inches of the base of each, cutting to good buds that point in the direction you would like the growths to take for producing well-formed heads or plants. By shortening to buds pointing inwards the growths are too crowded in summer. It is not necessary that every shoot be left 3 inches long, as some start from a lower part of the stem than others, and if strong may be left a little longer, but any that are weak should be cut more closely, say to 2 inches, medium shoots 3 inches, strong 4 inches, for newly planted Roses. We do not apprehend injury to the stems, still you cannot err by letting your man twist some small haybands, and coil these neatly round, allowing them to remain for a considerable time, for besides protecting the stems from frost now they conserve the moisture in dry weather in spring.

**Alternantheras (Idem).**—Thousands of these plants are grown in boxes in the manner you propose, and planted from them direct to the beds in

June, or when the weather permits. They should have a temperature of not less than 60°. The variegated *Mesembryanthemum* may be treated in the same way, but soil does not adhere to the roots so well. If you can dig some turves 2 inches thick or so, char the grass sides, cut into 2 inch squares inserting a cutting or rooted plant in each, with sand falling in round it, and pack these squares closely in boxes, covering with leaf mould or light soil, the plants will be in excellent condition for transplanting in due time. We are glad you find the Journal so helpful. Not a few persons hesitate to ask simple questions lest they should betray their own incompetency. It is just those who need instruction that we desire to aid. A reply on page 142 on starting Vines, will afford you safe guidance. We will readily answer any questions on matters on which you may need instruction.

**Exhausted Vines (D., Hants).**—As the Vines in the outside border are in such an exhausted state, and you have convenience for making a border inside the house, we should not lose a season in attempting to renovate them, but make a border 3 or 4 feet wide in the house, of good soil, building the front of the border with turves, procure some good canes at once and plant when growth commences, cutting out some of the old and apparently nearly useless rods to afford room for training young canes. It would not be advisable to shorten the young Vines for planting at this season of the year, as bleeding would most likely follow; neither would it be desirable to allow all the buds to grow, as this way you would probably have a great number of very weak laterals. We should rub off the buds down to where it would be convenient for fresh growths to start, and not until these had attained a length of several feet should we remove that part of the canes divested of buds. In this way you may have very good young canes this year and very strong ones the next. With good cultural attention you would in fact "gain a season" in furnishing the roof with healthy Vines, ever "waiting to see what the old Vines would do this year, and making a new border in the autumn."

**Annuals for Bedding (Oliver).**—Much depends on the nature of the soil and district as to whether annuals can be depended on for yielding a continuous display of flowers. In a thin soil and dry locality the charming annual *Nemophila insignis* is of short duration, whereas in cooler localities where the rainfall is greater it flowers during the entire season. As a rule hardy annuals are not well adapted for bedding purposes in summer. They are beautiful for a time, but often fail when extremely hot weather sets in, at a time when they are most wanted; yet with deep and rich soil, timely thinning of the plants, and picking off the flowers as they decay to prevent seed forming, beds may be rendered attractive. But there are annuals that are not flowering plants, and flowering plants that may be raised from seed that are not annuals, that you might employ for filling your beds. Subtropical plants, such as *Zea japonica*, *Ricinus* *Gibsoni* and *sanguineus*, *Wigandias*, *Eucalyptus globulus* in a young state; *Cannabis gigantea*, or Giant Hemp, and *Melanthus major* are very ornamental for certain beds and positions. They are all raised from seed sown under glass and the plants duly prepared for planting. Dwarfier plants similarly raised which are effective by their foliage are the Golden Feather *Pyrethrum*, *Perilla nankinensis*, *Chamaepeuce diacantha*, and *Dell's Beet*. Of flowering plants *Petunias*, especially the striped and barred varieties, make beautiful and lasting beds, the seed to be sown under glass and the plants grown on and prepared for planting out. Equally suitable is *Phlox Drummondii* raised in the same way. *Verbena venosa* sown at once and strong plants provided by May will flower until severe frost occurs; it makes an effective purple bed. The ordinary florists' varieties of *Verbenas* are readily raised from seed and flower freely in the autumn (the plants growing more freely than those from cuttings) and make good mixed beds. For large beds *Zinnias* are extremely gay. The seed should be sown under glass, but not too early, or the plants will be "drawn." *Ageratums*, both tall and dwarf, may be raised in the same manner as *Petunias*, and they will flower freely the first season. Stocks may be raised the same as *Zinnias*; they make gay and fragrant beds, but do not continue entirely through the season. *Asters* make gorgeous autumnal beds. The seed is usually better sown thinly in very rich light soil under handlights about the first week in May than sown in pots placed in heated structures at an earlier date. *Tagetes signata pumila* raised the same as Stocks makes a close yellow bed of long continuance. Of hardy annuals not many flower for a great length of time if the summer proves hot and dry. The best for bedding is *Saponaria calabrica*, which makes the most charming pink beds imaginable. The white variety also makes pretty beds or edgings. Sow in March in the beds, and thin out the plants so that they can assume a branching habit. For a rich blue or violet bed no annual equals *Convolvulus minor tricolor*. Sow and treat the same as advised for the *Saponaria*. By picking off decayed flowers and applying liquid manure as required the plants flower throughout the season. For producing scarlet, crimson, yellow, and buff beds grow the different varieties of the Tom Thumb section of *Tropaeolums*, often mis-called *Nasturtiums*. The seed may be sown in the beds or in rich soil in the reserve garden and the seedlings transplanted. *Godetia Lady Albemarle* makes a singularly rich bed, but does not always continue so long as is desired. In some of the beds you might plant such gay and free-growing *Glaadioluses* as *branchleyensis* and some others which would grow above such plants as dwarf Stocks and other annuals, and would commence flowering when the annuals were fading. Then for small beds *Lobelias* of the blue and mottled varieties are very suitable. With such plants as we have named, properly raised and well cultivated, you may render your garden gay in the manner which you appear to desire. It is of great importance, however, to remember that when annuals are grown so thickly that they cannot branch and spread, their beauty is necessarily of short duration; for when each plant has only room, as is often the case, to produce one stem, the flowers at the summit cannot be succeeded by others to continue the display.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. *Woodbine*.—*Acacia longifolia*.



## COVENT GARDEN MARKET.—MARCH 10TH.

BUSINESS quieter. Late Grapes coming short and prices rising. All classes of outdoor vegetables scarce.

## FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. ½ sieve	2 0	to 3 6	Oranges .. .. 100	4 0	to 6 0
„ Canadian .. barrel	10 0	12 6	Peaches .. .. per doz.	0 0	0 0
„ Nova Scotia ..	10 0	12 6	Pears, kitchen .. dozen	1 0	1 6
Cobs, Kent .. per 100 lbs.	27 6	30 0	„ dessert .. dozen	0 0	0 0
Figs .. .. dozen	0 0	0 0	Pine Apples English .. lb.	1 0	1 6
Grapes .. .. lb.	5 0	8 0	Plums .. .. ½ sieve	0 0	0 0
Lemons .. .. case	8 0	10 0	St. Michael Pines .. each	2 0	6 0
Melon .. .. each	0 0	0 0	Strawberries .. per oz.	1 0	0 0

## VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. .. dozen	1 0	to 0 0	Lettuce .. .. dozen	1 0	to 1 6
Asparagus .. .. bundle	2 0	8 0	Mushrooms .. .. punnet	0 6	1 0
Beans, Kidney .. lb.	2 6	3 0	Mustard and Cress punnet	0 0	0 0
Beet, Red .. .. dozen	1 0	2 0	Onions .. .. bunch	0 3	0 0
Broccoli .. .. bundle	0 9	1 0	Parsley .. dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	6 0	8 0	Parsnips .. .. dozen	1 0	2 0
Cabbage .. .. dozen	2 6	3 0	Potatoes .. .. cwt.	4 0	5 0
Capsicums .. .. 100	1 6	2 0	„ Kidney .. cwt.	4 0	5 0
Carrots .. .. bunch	0 3	0 4	Rhubarb .. .. bundle	0 2	0 4
Cauliflowers .. .. dozen	2 0	3 0	Salsafy .. .. bundle	1 0	0 0
Celery .. .. bundle	1 6	2 0	Scorzoneria .. .. bundle	1 6	0 0
Coleworts .. doz. bunches	2 0	4 0	Seakale .. .. per basket	2 0	3 0
Cucumbers .. .. each	0 6	0 9	Shallots .. .. lb.	0 3	0 6
Endive .. .. dozen	1 0	2 0	Spinach .. .. bushel	6 0	8 0
Herbs .. .. bunch	0 2	0 0	Tomatoes .. .. lb.	0 9	1 0
Leeks .. .. bunch	0 3	0 4	Turnips .. .. bunch	0 4	0 6

## PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi .. dozen	9 0	to 18 0	Ficus elastica .. each	1 6	to 7 0
Arbor vite (golden) dozen	0 0	0 0	Ferns, in variety .. dozen	4 0	18 0
„ (common) .. dozen	6 0	12 0	Foliage Plants, var. each	2 0	10 0
Arum Lilies .. .. dozen	9 0	18 0	Genistas .. .. dozen	10 0	12 0
Azaleas .. .. dozen	24 0	42 0	Hyacinths .. .. dozen	6 0	9 0
Begonias .. .. dozen	0 0	0 0	Lilies of the Valley, in clumps or pots, per doz.	15 0	30 0
Bouvardia .. .. dozen	12 0	18 0	Marguerite Daisy .. dozen	8 0	12 0
Cineraria .. .. dozen	10 0	12 0	Myrtles .. .. dozen	6 0	12 0
Cyclamen .. .. dozen	12 0	24 0	Palms, in var. .. each	2 6	21 0
Cyperus .. .. dozen	4 0	12 0	Pelargoniums, scarlet, doz.	6 0	9 0
Dracena terminalis, dozen	30 0	60 0	Primulas, single, dozen	4 0	6 0
„ viridis .. .. dozen	12 0	24 0	Solanum .. .. dozen	8 0	12 0
Erica, various .. .. dozen	12 0	24 0	Spiraea .. .. dozen	12 0	18 0
Euonymus, in var. dozen	6 0	18 0	Tulips .. .. 12 pots	6 0	9 0
Evergreens, in var. dozen	6 0	24 0			

## CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. 12 bunches	0 0	to 0 0	Lilium longiflorum, 12 blms.	0 0	to 0 0
Acacia (Mimosa), Fr., per bunch	1 0	1 6	Lily of the Valley, 12 sprays	0 9	1 6
Arum Lilies .. 12 blooms	4 0	6 0	Marguerites .. 12 bunches	6 0	8 0
Azalea .. .. 12 sprays	0 6	1 0	Mignonette .. 12 bunches	3 0	6 0
Bouvardias .. per bunch	0 6	1 0	Pelargoniums, per 12 trusses	1 0	1 6
Camellias .. 12 blooms	2 0	5 0	„ scarlet, 12 trusses	0 9	1 0
Carnations .. 12 blooms	1 0	3 0	Poinsettia .. 12 blooms	0 0	0 0
Chrysanthemums 12 blooms	2 0	4 0	Roses (indoor), per dozen	3 0	9 0
„ 12 bunches	9 0	18 0	„ Tea .. .. dozen	2 0	4 6
Cyclamen .. doz. blooms	0 4	0 9	„ red, French .. dozen	2 0	4 0
Epiphyllum .. doz. blooms	0 6	0 9	Spiraea .. .. 12 sprays	1 0	0 0
Encharis .. per dozen	4 0	8 0	Tropeolum .. 12 bunches	2 0	3 0
Gardenias .. 12 blooms	6 0	18 0	Tuberose .. 12 blooms	3 0	0 0
Hellebore .. doz. blooms	0 0	0 0	Tulips .. .. dozen blooms	0 9	1 0
Hyacinths, Roman, 12 sprays	1 0	1 6	Violets .. .. 12 bunches	1 0	1 6
Lapageria, white, 12 blooms	0 0	0 0	„ Czar, Fr., .. bunch	1 6	2 0
Lapageria, red .. 12 blooms	1 0	2 0	„ Parme, French, per bunch	4 0	6 0



## SEED TIME.

MARCH came in with frost and snow, giving to the land the aspect of midwinter rather than that of the first month of spring; but with high drying winds and the sun daily rising higher and higher snow and frost cannot long retain a hold of the soil, and the sowing of spring corn must now be done as the soil becomes dry enough for the drills and harrows. On heavy land naturally retentive of water sowing is often so much retarded that a light corn crop is the result, and it must be owned that old unwieldy implements add to our difficulties in the culture of such soil, as in point of fact they do in a certain degree in any soil. Last autumn Wheat-sowing was much hindered by wet weather. We were out on a heavy land farm once during that time, and saw Wheat being sown with a huge old drill with one horse in the shafts and two horses in front, and so heavy was the work that the shaft horse had to be changed repeatedly.

Nor is this an extreme case. Even with two pair of sh fts and steering gear it is a common thing to see three horses to a drill, and it is taken as a matter of course that there shall be two men with it. Now we may reasonably assume that farmers must regard as a boon the introduction of a drill by means of which we may not only dispense with a man and a horse, but may also get through the work quicker and better than we have hitherto been able to, and it is our object to call attention to such an implement.

We were asked quite recently to inspect the Chadborn and Coldwell Company's Excelsior Corn, Seed, and Manure Drill, a new introduction here, but which has for some time

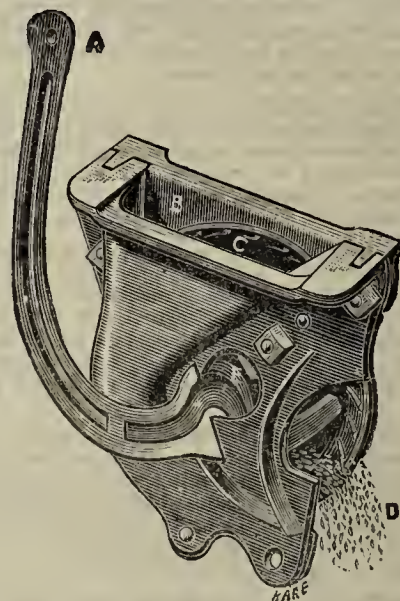


Fig. 36.

been in use upon many large farms in America. It is precisely the great extent of farms in the United States and the necessity for economical and expeditious labour that has sharpened the wits of farmers and implement makers there, and led to the invention of such implements as the Excelsior Drill. In this drill we found strength and lightness combined so well that with a pair of horses driven with reins from behind, one man can manage the implement and horses with ease and do the work well and quickly. It will sow any kind of seed from Beans down to Turnip seeds equally well, the distributors being adjustable to any given quantity by the simple movement of an arm or lever, and by means

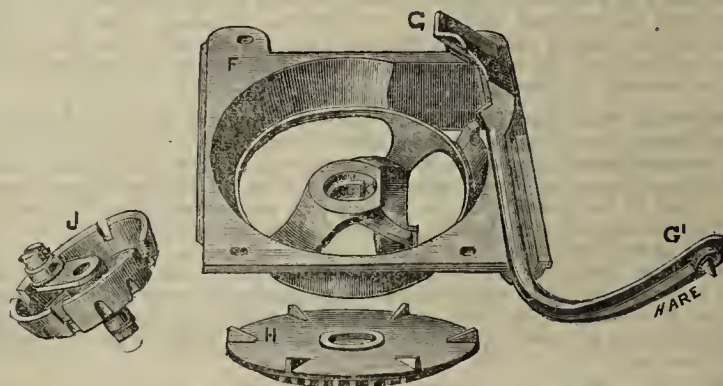


Fig. 37.

of a dial and pointer the quantity sown per acre is shown. By another equally clever contrivance the number of acres drilled per day is recorded. It has no cups on wheels as we have in our old drills, but the grain is distributed by means of vertical rotary wheels placed in separate compartments, and as the motion is derived from both or either of the wheels, the drill sows right or left or in circles without loss of motion. This part of the implement is termed the corn drill, and with it we can sow seed of any size by means of the regulator A, fig. 36, one of which is in position over each coulter. The seed box, or rather that part of the drill in the position of the ordinary seed box, consists of a seed compart-



ment in front and a compartment for artificial manure at back, each perfectly separate from and independent of the other. It is claimed for the manure drill that it distributes damp or sticky manures evenly, and this can easily be understood when the distributors are seen in motion, for they are of metal, and the revolving table *H*, fig. 37, is kept clean by contact with *G*. There are shut-off slides to the distributors to admit of grain or manure being sown in a given number of rows.

Another separate and independent part of the implement is the grass seed drill, which may be termed a corn drill in miniature. We have therefore here an implement by means of which a man with two horses may at one and the same time sow, say, Barley, artificial manure, and Clover or mixed seed for a two or three-years layer. In no implement which has come under our notice have we found utility, simplicity, lightness, and strength in such admirable combination. Even in the coulters we have a novelty in the spring by means of which they may pass over obstructions without injury. They have reversible steel points, are easily adjusted to deep or shallow soil, and the driver can with the lever raise the coulters and throw the distributors out of gear. An examination of this ingenious implement will convince any practical farmer that it is destined speedily to take rank with the best labour-saving appliances of the day. It will, we think, prove as important at seed time as the self-binding reaper does at harvest, and it is our intention to have one upon each of our large farms.

We have intentionally devoted much of our space this week to a somewhat full but by no means exhaustive description of an implement which lends itself so admirably to the

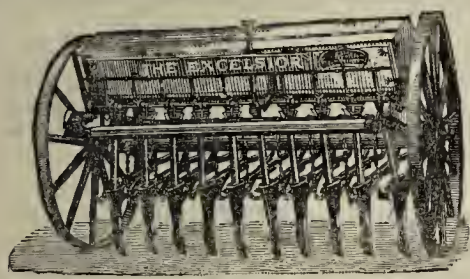


Fig. 38.

economy of labour and to the application of artificial manure to corn crops. Very little consideration will show the contrast between the manufacture of farmyard manure and its distribution with men, horses, and carts, and the use of home-mixed pure artificial manures applied to the soil by means of this drill, which is represented in fig. 38.

By whatever means seed and manure are sown this year, let due thought be given to so apportion the land that there may be no extremes in cropping, for such a course seldom answers. There should be a clearly defined reason for the sowing of every crop either for home use or for sale, but we must leave the consideration of this important matter till next week.

#### WORK ON THE HOME FARM.

Very trying has the severe weather proved for the lambs, but so far we have avoided losses. Lambing was practically over in our large flock on the home farm when the heavy snow storms set in at the end of February. The forward lambs were out with the ewes in the park, and as there are plenty of belts and clumps of evergreen trees there for shelter we kept them there. The next batch of lambs went with the ewes into our large comfortable lambing fold, sheltered by a thick belt of trees, enclosed by a thick fence of straw, and with plenty of snug pens and straw bedding. The younger and more delicate lambs were taken into a yard with plenty of deep open lodges. With such shelter and plenty of sound nourishing food, lambs may fairly be expected to escape harm from cold weather, and to continue in thriving condition, a liberal diet to the ewes ensuring plenty of rich milk to the lambs. Arrangements had been made for beginning folding some of the ewes and early lambs on Turnips, but we decided to wait till the snow was gone, for although we have lamb cloths to fasten to the hurdle, the Turnip field was in such a bleak situation that we feared the effect of the exposure.

That cows are fast calving now we had pleasing evidence recently in the dairy of one of our tenants—a lady who is rich enough to be able to keep a coachman to drive her carriage and horses, and yet she was

up that morning at 4 A.M. to help make the 80 lbs. of butter which we saw. It is her custom to do so always on churning mornings, and we mention the fact as evidence of energetic action on a Suffolk farm equal to anything we have heard of the doings of the notable wives of Sussex farmers. On this particular farm the calves were being sold as soon as possible, so high a price being obtained for the butter that it was not considered desirable to fatten any of the calves. In this and similar instances such a course is right, but in many others fat calves prove an excellent investment, still a calf a few weeks old being as valuable as many are at six months. In our own dairy herd we only save enough of the best cow calves to add to the herd eventually. All others are fattened for veal as quickly as possible. Be it remembered that such provision for annual additions to the dairy herd is always necessary, for there are failures, if not losses, in every herd. We cannot well confine ourselves to a given number. Barrenness, abortion, old age, and disease must all be taken into account, and a cow with any of such blemishes fails to be useful for dairy purposes, and well for us it is if we are always able to replace such failure with useful home-bred animals, and to avoid having to purchase new cows.

#### FARMERS AND GARDENERS.

YOUR correspondent, "One Who Wishes for Fair Play," asks what capital ought a farmer to command for the satisfactory working of a 200-acre farm? and then answers the question after the stereotyped fashion, or that meeting with general acceptance—£10 per acre, equal to £2000. Now money is at present cheap, the Bank of England rate being 2 per cent. The question is, What is a fair rate of interest for capital invested in farming? Trade is bad, prices are low, an outcome of the spending being in excess of the profits. If a manufacturer cannot get a profit upon each £100 invested it is clear there must be a loss. Relief will be sought in some way—reduction of wages, economy in plant, or the greater utilisation of material. He must be eased in some shape to enable him to manufacture more cheaply, and so meet the requirements of the spending classes, whose means of purchasing are reduced. Suppose a farmer invests £2000 in a 200-acre farm, what interest is it likely to bring him per annum? Deposited capital, money granted for others—bankers, public works, and companies—to work, the depositor taking no risk, and having a first claim, gets 2½ per cent. upwards, rarely above 4 per cent., all high rates showing the riskiness of the deposit. Deposit with risk, or shareholders in public companies get rates of interest varying from 3 to 6 per cent.

Just apply this to farming—£2000 working invested capital should afford a return in proportion to the risk incurred. The risks are inclement seasons and disease of stock, concerning which little preventable measures can be taken, though means can be made available in mitigation of the risk. A bad harvest means loss of crop of an exceedingly variable value. Something must be set aside as a reserve fund to meet such calamities not incidental to manufacture. To get at this we must know the actual loss of the 200-acre farmer from providential causes during the past ten years. Has it been a quarter? Then £500 ought to be standing to his credit at the bank in addition to the £2000 invested in the land; if not, then we must take it from the £2000, and have only £1500 actually available for future investment, for all loss of active capital means drawing on the reserve; and if there is no reserve whence is the money drawn? From the capital? Then the interest, to say nothing of the inadequacy of the capital for the working of the land, must be in proportion; instead of interest on £2000 we have only to look for interest on £1500, with lessened output in produce. The risk in farming is double what it is in commercial enterprise of a manufacturing character. Bad seasons and losses from disease are clearly not applicable to manufacture, though it is in commerce. In shipping there are high rates of insurance corresponding to the reserve, though provided in a different way, and the house or firm does not go down under a calamity simply because steps have been taken to keep it afloat in case of probable disaster. Is there such an insurance of farmers against bad harvests and contagious disease in cattle?

Taken on an equality with manufacturers of raw material, we have to consider farming as profitable in proportion to the capital invested. Land differs in quality, capability of producing according to the efforts at improvement, and distance from market, or means of transit of goods to or off the farm. This also determines the rent. As the land is, so should the rent and capital be. If poor, wet, cold, and away from market it must of necessity bring a low rental, whilst if near a town or railway it will be under any conditions in better heart from facilities of manuring, &c., and considerably lessened in working expenses, will bring the highest rental, and the rates will be higher. These matters have great influence on capital and on profit, though relatively there is not much difference in the capital invested, only the first turns it over slowly and the other quickly from peculiarity of crop and location. There is a decided difference between them—the capital of the one can only be turned over once in a twelvemonth, whilst the other is turned over two or three times. This as applied to anything is profitable only in proportion to the skill and sound judgment exercised in its application. One farmer has improved stock for dairy or fattening purposes, improvements in implements, the choicest of seed, and uses most of the best fertilisers. The other is not careful about such matters; the time advances, and he cares not to move forward with them, and is found some day in despair. Rents are too high, rates are ruinous—everything advanced but the prices of his commodities—he fails to see that there has been a breaking up of monopolies, a cheapening all round of the necessaries as well as the



luxuries of life through the spread of knowledge and improved methods of production obtained in new and enlarged fields.

In farming capital it ought to afford 5 per cent. up to  $7\frac{1}{2}$  per cent. I think it is usually calculated at 6 per cent, which on £2000 is £120 per annum, to which we have to add remuneration for management, or another £120, which is manifestly one-third in advance of the value, as a competent manager can be had for a 200-acre farm at 25s. to 30s. per week; but as a farmer finding his own capital I make due allowance for it, and accord remuneration for the assumed extra care possessed in its application, as it is clear he would have to give a commission as incentive to other if it were to be applied with the strictest regard to profits, which are in proportion to the efficiency. Now 3 per cent. would be all he would get for the money invested, so as to give him no trouble or anxiety; by using it himself it returns 6 per cent. How much of the 3 per cent. is put aside to meet depressions in values, bad debts, and other things that are incidental to all business transactions? Does the former put by any of the 6 per cent. against a rainy day? Three per cent. ought to go to the reserve account, as the money would return that without any exertion on his part, so that he gets a living for himself, a recompense for his management, and 3 per cent. profit on the £2000, or £60 per annum; and this, added to the reserves, is £120 per annum. His capital is doubled—£2000 in the land, 2000 standing to his credit at the bank at the end of some thirteen years if the weather is propitious, and murrain does not prevail in the interim. If the farmer, on the other hand, spends the profits of his farm as realised, then the first adverse season marks his decline. There is less stock, less put in the land, and lessened labour. Relief is sought the wrong way, as a reduction of stock, tillage, &c., is corresponding to a reduction of capital, and the profits are in proportion with the fact that rent and other charges remain the same. The farmer must do one of two things—save or waste, like anybody else.

I make no question of his saving when his sons, after being educated, are made to earn their own living, but if they live out of the farm they live on the profits and contribute in no way to them. It is different if the sons stand in place of some labour that would otherwise have to be paid for; then who would have right to complain? It is the same with the daughters. If they stand in place of servants, save money from being paid in wages, then I grant they are entitled to pianos and every other luxury and enjoyment that their status warrants. The land will only do so much. The landlord grabs, the farmer grabs, and the two have driven away the small capitalists, and caused them, by the industrial energy they were not permitted to exercise at home, to practise thriftily in the colonies with a success enabling them to undersell the grower in the home markets with everything against them except rent and the insecurity of tenure, with compensation for unexhausted improvements.

Treat the land fairly, and it will pay good interest on investments. Revive agriculture, put capital in the soil, and other trades will revive in proportion to the increase of the products of it. It wants capital—utilised, not protected; thrift, not extravagance.—UTILITARIAN.

If "Thinker" takes me to be a farmer, I beg to inform him that I am not, but a spademan; not a kid glove man either; also that I am not connected with kid-gloved farmers. The farmers that I uphold are those that take breakfast in the morning in summer at half-past five, and see their men come and set them to work, also take the care of sheep and stock by being their own shepherds, follow their own drill, and frequently take a day at the manure cart; in fact ready for anything connected with the farm. There are as many good farmers as gardeners or market gardeners, and there is in each branch quite as many bad ones, but do not condemn all for half. "Thinker" states that it is the farmers' remedy that rent and wages must come down, or should come down. Are not all other industries lowering the wages? I see these last three weeks several large firms have lowered their wages from  $7\frac{1}{2}$  to 10 per cent., which is proving my statement, and depend upon it things will find their level, but it is not all done at once. "Thinker" asks if the rents of the labourers' cottages ought not to come down. I wish for fair play all round. Agricultural labourers pay here from £3 to £5 per year, and most of the cottages have a good garden, also keeping a pig. Between 1852 and 1858 not a few large landowners had their estates valued twice. In several cases the rent was doubled, but not a shilling was put on the labourers' cottages here, nor did any farmer wish to have their labourers' rent raised, but I do not think it is so in the towns. There the rents are double the above without any gardens, or if any they are very small, but town cottages are held by mechanics mostly.

I am pleased to hear that "Thinker" spent "one year" in a farm house. I need not remind him of the hours of labour there; but perhaps I had better, lest he may have forgotten. My time was four o'clock in the morning to the stable, and eight hours at the plough, to turn over one acre per day, which all were expected to do, and we left the stable at eight o'clock at night; in winter from five in the morning to seven at night; in harvest no limit to time. This is how I served in the farm house.

Where does "Thinker" see it stated by me that we are to give up growing Apples because of our climate? Here he is contrary to his own thoughts. On page 3 of this Journal he states American Apples are sent 4000 miles to market, have a ready sale, our home-grown fruit going a-begging, we not having selected the right sorts. Then he asks if I was at the Crystal Palace a few years ago, to which I say "Yes," and several times since; also at most of the London shows for the last fourteen years, and have shown and taken prizes. But this is going from the subject. "Thinker" states, at the Palace Show referred to, taking the Apples bulk for bulk—that is, English and American, the

former would, if sold, have realised more money than the latter. Now, by this statement our own home-grown fruit must be the best, therefore it is contrary to his former statement. I stated, and will prove it, that we cannot colour Apples here, except in very few places, like they are coloured in America. The proof I wish to show is, Apples have been sent here from America and Canada by friends connected with the family I serve. The best only were sent, and some were very fine and the colour excellent, but the flavour does not equal our choice sorts. To further prove my statement, I may remark we have had a dozen and a half of eight choice sorts of young Apple trees sent here from America, and though planted on the best land the result is fruit deficient in size, colour, and flavour; also the trees as yet are very shy bearers, otherwise they are very healthy and not too vigorous, but make good short-jointed wood. They have been planted eight years. Why is not Covent Garden the best market for fruit 100 miles from London? Is Manchester, York, Leeds, or Halifax any better? I say, Decidedly not. How is it that the best Celery has been sent to Covent Garden from Yorkshire through the autumn? also there are now scores of tons of Turnips sent to Covent Garden from Yorkshire. I do not agree in sending further north even to St. Petersburg, though I agree with "Thinker" that corn, taking the average, has been as low before as now. I have sold good Barley at 16s. per quarter, but rents were only about half what they are now, and rates not a quarter.—ONE WHO WISHES FOR FAIR PLAY.

SEED SAMPLES.—We have the pleasure to hand herewith for inspection and acceptance our cabinet of guaranteed grass seeds, and are sure you will pronounce it unique in character on account of the very convenient form in which the seeds are shown, as it admits of the case being kept for reference upon the study or library table, and is altogether an immense advantage over the old system of issuing samples in packets, which must not only be partially destroyed to get at the contents, but prevent the seed being handled without loss.—JAMES CARTER & Co.

[The "cabinet" is an extremely neat box, comprising eight small metal boxes with glass lids, each box containing a sample of some Grass or Clover seed, and bearing the common and botanical name on a narrow red label. We agree in all our correspondents say about it as a convenient and improved method of sending sample seeds for inspection.]

MESSRS. JAMES DICKSON & SONS' FARM SEED CATALOGUE.—Among other interesting matter in the issue before us is the approximate number of seeds in 1 lb. weight of the principal forage and pasture Grasses, some of which, such as the Meadow Grasses, *Poa pratensis* and *P. trivialis*, being recorded as about 2,582,000.

## OUR LETTER BOX.

Experiments in Agricultural Chemistry (*H. P.*).—Professor Jamieson's views on agricultural chemistry and the results of his experiments are embodied in a series of annual reports of the work of the Associations for the Improvement of Agriculture, which have for some years been under his control both in Sussex and Aberdeenshire. We believe the reports are only printed for the benefit of members of the Associations, and are not sold.

Lame Pigs (*B. B.*).—If the lameness is simply a result of exposure to damp and cold, warm food and enough dry bedding to enable the pigs to burrow under it and cover themselves may suffice. But if the lameness is accompanied by difficulty of breathing and failing appetite at once call in a veterinary surgeon, for it may prove to be swine fever, which is a serious contagious disease, and of which you are bound to inform the local inspector. Six of the best Strawberries are Marguerite, President, Sir Joseph Paxton, James Veitch, Dr. Hogg, and Loxford Hall Seedling.

## METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat.  $51^{\circ} 32' 40''$  N.; Long.  $0^{\circ} 8' 0''$  W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain
1886.		Baromet- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
February & March			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Snnday .....	28	30.254	31.8	31.4	N.E.	34.3	32.8	30.0	39.8	24.0	0.017	
Monday .....	1	29.797	31.6	31.5	S.E.	34.2	36.4	28.8	39.7	24.1	0.333	
Tuesday .....	2	29.316	35.3	32.2	W.	34.2	40.5	30.2	76.2	30.4	0.018	
Wednesday .....	3	29.437	33.1	32.7	N.E.	34.3	36.4	29.8	68.2	28.6	0.014	
Thnrday .....	4	29.875	30.2	28.8	W.	34.2	41.4	24.7	75.8	22.8	—	
Friday .....	5	29.352	34.5	33.3	S.E.	34.2	38.8	28.6	64.2	23.4	—	
Satnrday ....	6	29.679	32.2	30.4	N.W.	34.2	40.9	27.2	73.1	22.2	—	
		29.673	32.7	31.5		34.2	38.2	28.5	62.4	25.1	0.432	

## REMARKS.

28th.—Cloudy all day, with occasional sleet.

1st.—Sleet and fine snow on ground, and falling all the morning to a total depth of  $1\frac{1}{2}$  inch; it fell also most of the afternoon, but melted as it fell. Heavy rain in evening.

2nd.—Cloudy early, with a little sleet: fine morning, afternoon cloudy, sleet at night.

3rd.—Alternate bright sun and heavy snow; windy clear night.

4th.—Very cold, but gloriously bright.

5th.—Very bright morning, cloudy afternoon.

6th.—Fine and bright early, shower of snow and sleet between 11 A.M. and 5 P.M.

Not quite so cold as the previous week, but the temperature still far below the average.

—G. J. SYMONS.





## COMING EVENTS

18	TH	Liverpool Spring Show. Linnean Society at 8 P.M.
19	F	
20	S	
21	SUN	2ND SUNDAY IN LENT.
22	M	
23	TU	Royal Horticultural Society—Floral and Fruit Committees at 11 A.M.
24	W	Royal Botanic Society, Regents Park Spring Show. [Promenade Show.]

## THE CULTIVATION OF MELONS.

[A paper read by Mr. W. Bardney, Norris Green Gardens, before the Liverpool Horticultural Association, March 13th.]



**W**HETHER Melons are grown better at the present time than formerly is of little moment, but they are grown with less difficulty, and their culture appears to be better understood. With properly appointed structures there is no difficulty in maintaining a supply of ripe fruits over a period of five clear months—that is, from the end of May until the end of October. They can be produced two or three weeks earlier, and the supply kept up well into November, but only those who have the very best of convenience for raising plants can obtain ripe fruits so early, though to have them late in the season is not so difficult. Those who cultivate the Melon only in hotbeds and frames must be content with a late supply of fruits.

To have the fruit ripe early in the season much depends upon the structure available for the purpose. I prefer a narrow lean-to house on the side of a wall, with top and front ventilation, and if there is a shed behind it all the better. The roof must have a moderately sharp pitch, so that every ray of light and sunshine would be able to reach the plants. The hot-water pipes provided should be as evenly disposed in the house as possible, and sufficient to maintain a temperature at night that will not fall below 70°. The pipes employed must be capable of doing this on the very coldest night without being overheated. Hot-water pipes overheated are injurious to the plants, and often result in the plants becoming attacked by red spider. Provide bottom-heat pipes so that the heat if desired can be raised from 80° to 85°. The piping required depends upon the size of the structure, and as these differ so widely it is unnecessary to enter into details. The arrangements of the house are, however, important and must be considered. In houses such as I have alluded to, say 8 or 9 feet wide, there is generally a bed 3 to 4 feet wide extending from the walk to the front wall of the house, with pipes to the front and probably in the walk, with bottom-heat pipes in the bed. Melons can be successfully grown in houses with such arrangements, but to my mind these are not the most satisfactory; first, because it is unnecessary to fill, say, a bed 3 feet wide with soil in which to cultivate these plants; and secondly, because the front portion of the border where the plants are generally placed is several degrees colder by contact with the front wall early in the year than the remaining portion of the bed of soil. To remedy this a second wall (4½ inches wide is sufficient) should be built one foot from the outer wall, or sufficiently far from it that one or two of the surface pipes can be conveniently fitted between the two. Another wall of the same size should be built the whole length of the bed and 18 inches from the former. It will thus be seen that the wall bordering the walk would be 4 feet from the front wall, and the bed practically 3 feet wide divided down the centre. Two pipes would be ample for bottom heat, one in each bed, the flow where the Melons would be planted and the return

in the other. The upper surface of these pipes should not be more than 18 or 20 inches from the top of the walls. The pipe in the bed nearest the walk could be used to assist in maintaining the surface heat if the bed was covered with an open trellis, but this bed would be filled with cocoa-nut fibre refuse or some similar material for plunging and propagating purposes.

For second and later batches of fruit narrow span-roofed houses would be preferred, and the extra wall to the front in this case could be dispensed with. In this case the houses are best with their ends facing north and south. But when the season has fairly advanced Melons can be grown successfully in any glass structure, whether large or small, as long as drip is prevented, light and sunshine can reach the plants, and the requisite heat is maintained.

Melons can be grown and ripened in four months from the time the seed is sown. The first crop will take a little longer, and if seed is sown on the 1st of January the fruit will probably not be ripe on the 1st of May, but they will not be much later if no time is lost and the first female flowers fertilised. To grow plants from seed sown at the time named the cultivator must have a close warm house in which to raise his plants, and a steady bottom heat of 80° to 85°, with a surface heat of 70° to 75° until the plants are ready for placing out, and this temperature should be continued until the fruit is ripe. Young Melon plants grow slowly during the dull sunless days of the first month of the year, and without the best convenience it is useless to sow the seed until three weeks or a month later. If seed is sown about the last week in January the plants with fair accommodation will grow freely, even rapidly, from the middle of February, and fruit will be ripe about the 25th of May, according to the season. This is as early as the majority of people have Melons, and the time I am able to produce them with the means and conveniences at my disposal.

The present is a good time for raising plants, and we prefer a hotbed made in the house in which they are to be grown, say in the bed nearest the walk. In this the material can be raised above the top of the brickwork so as to bring them near the light after the seed has germinated and the plants commenced growing. The material for the bed should consist of Oak or Beech leaves that were stored in a shed when dry in autumn, and litter from the stables. If this is properly prepared it is surprising how long heat will be maintained. Leaves are not within the reach of all, but litter can generally be obtained, and this will answer the purpose very well. Collect the litter as soon as it is thrown out of the stable and place it under cover to prevent it getting saturated with heavy rains. When sufficient has been gathered throw it into a heap and turn it daily so that rank steam can escape. A gentle lasting heat is wanted, and not a strong violent heat such as is produced by wet litter. Some may ask when bottom heat has been provided, Why bother with making a hotbed? This is easily answered, for young plants will not grow so freely in the dry heat from pipes as they will in the moist genial warmth surrounding the plants when plunged or standing upon fermenting material.

When the bed has been made and commenced heating the seed may be sown in the centre of 3-inch pots filled with soil, one or two pieces of crock being placed in at the base. Two or three seeds may be placed in each pot, and if the soil is in an intermediate state of moisture when the pots are filled no water will be needed until the seed has germinated. The pots may be stood on the surface of the manure at first and afterwards plunged to their rims as soon as it is certain that the heat is not too strong. The best and most robust plant that comes up should be selected and supplied with a small stake as soon as needed. When a good quantity of roots has reached the side of the pots transfer the plants into others 2 inches larger. Drain them well, using loam with one-third of leaf mould and manure thoroughly warmed, so that no check will be given. When well established in this



size the young Melons may be planted out. It is not half the trouble to raise plants later in the season, for the seed can be sown in 5 or 6-inch pots and the seedlings placed singly when ready into 4-inch pots, and from these planted out in the soil prepared for them. I advocate planting Melons in a small state when the season has advanced, but the first plants grow more rapidly plunged in the warm manure than they would planted out. When a constant succession of ripe fruit is required, say from May until the end of October, a little seed may with safety be sown once a month until the beginning of July.

At the planting-out time it is necessary to consider what system of cultivation is to be practised. There are three—namely, the extension, the modified extension, and the restricted systems. In order to carry out the extension system successfully one or two plants only should be allotted to fill the whole or part of the trellis of the house, according to the space at the disposal of the cultivator. If the house is not large one plant is capable of filling the whole space, and may be either at one end or in the centre. Various modes of training may be adopted. If planted in the centre the point of the plant may be removed when it reaches the first wire, or has gained sufficient strength to produce strong lateral growths, and two strong shoots may be selected and trained horizontally on each side of the stem. These may extend along the base as far as desirable, either until they reach the ends of the house or the second plant if employed, when the points should be again removed. From these horizontal shoots train others upright at distances of about 18 inches. This can be going on near the centre of the plant, even while the horizontal shoots are extending. The shoots first trained up the wires will have reached the top before all are really started from the base, and must be stopped as well as the first laterals that are produced, so that an even crop of female flowers will appear at one time. With many varieties it is very difficult to get the fruit to swell unless all the flowers have been fertilised and have commenced swelling evenly from the first. Such free-swelling and free-fruited varieties as Conqueror of Europe, Eastnor Castle, and others may be set as soon as the plants have attained fair strength, for they will swell fruits set at different times, and thus form a long continuous supply. Another mode of training is to allow the laterals to extend horizontally from the central stem. When planted at one end of the house adopt the same principle of training. In this case the shoots lead away from one side of the plant instead of both, as when planted in the centre of the space to be filled.

Although this extension system has been successfully carried out there are objections which will prevent its general adoption. First, fruits cannot be produced so quickly as by restriction. Secondly, if a plant grown on this system should by any means be attacked by canker or other diseases, the whole of the crop of fruit will be lost; whereas if, as in other systems, more plants are under culture, a part at least of these may escape. Thirdly, it is impossible to maintain by the extension system an unbroken supply of ripe fruit as can be done by the one referred to above.

The modified system of extension is more generally practised, and differs chiefly in the number of plants required to fill the house. Under this method one plant to each light is all that is requisite, while the training, so far as space permits, is nearly the same. Four leading shoots are taken up the wires until they nearly reach the top. The first laterals produced towards the base of each of these shoots are stopped at the first leaf, and generally produce female flowers on the sub-laterals by the time the first laterals towards the top are developed. By this means there is no difficulty in setting the number of fruits required on each plant about the same time, so that they will swell evenly together. Unless large numbers of ripe fruits are required about a certain time it is not desirable to place out too many plants at one time, or it is difficult to maintain a regular supply. If three or four only are planted a succession of fruits on them can be

insured by stopping the whole of the first laterals and setting the fruit on the sub-laterals towards the top of the plants. This system is a reliable one and may be practised with every certainty of success.

(To be continued.)

#### REMARKS ON SOWING VEGETABLE SEEDS.

EACH year that I open the seed hamper I invariably call to mind my thoughts on the first occasion this happened. The seeds were ordered by my predecessor, and a much larger quantity than was needed came to hand. It would have been bad enough if I had made out my own seed order, but the array that met my bewildered gaze quite upset my nerves, and made me wish that I was still a foreman and not wholly responsible for maintaining a regular and continuous supply of vegetables. However, I contrived to surmount the difficulty, and since that time I have become less and less frightened at the many packets of seeds received, and it should be added have gradually reduced both the number of sorts to be relied on as well as the actual quantity of seeds necessary for maintaining the supply. After the decision as to the sorts and quantities to be ordered, the greatest difficulty with the young or inexperienced gardener, amateur or otherwise, is to decide when each should be sown or planted, and it is upon this subject I propose to offer a few remarks. It is true nearly every catalogue, as well as the gardening and other periodicals, contain much useful information for those needing it, but it is possible to consult too many oracles, and I do not believe in the truth of the old proverb, "In the multitude of councillors there is wisdom," simply because horticulturists must necessarily differ so much in every case depending upon circumstances.

PEAS.—I commence with Peas, for the simple reason that the time has arrived for sowing these where the ground is in good working order. It is a great mistake to sow sound seed at all thickly, especially of the branching sorts of Peas. Crowded rows afford a glut of pods, whereas the thinner rows are much more continuous bearing, and therefore the most profitable. The early blue and white round-seeded sorts are not of branching habit, and these may well be sown more thickly, or say in drills 6 inches wide and about 2 inches apart each way. Instead of sowing several of these early sorts, none of which is very profitable or good in quality, I prefer to rely principally upon American Wonder and William I. The former is now cheap and may be grown in pots, frames, at the foot of sunny walls, between the rows of William I. instead of Spinach, or on an open sunny border, the rows being disposed about 15 inches apart. Being a Marrow Pea it is unwise to sow very early or before the first week in March, and even later if the ground happened to be wet and heavy. As it precedes the round-seeded sorts it is apt to spoil the palate for the latter, but that is a fault to be condoned. Our ground being cold and heavy early sowing is out of the question, and we find it advisable to sow a quantity of William I. in boxes about the end of February, placing these in a Peach house and planting out in a warm position when about 3 inches high. These, with a little extra shelter at the outset, invariably yield gatherings before the earliest sown in the open ground. Later on, if there are failures in the rows of choicer sorts, directly this is discovered seed is at once sown of the same variety in boxes placed in gentle heat. After being duly hardened the seedlings are carefully shaken out from the soil and dibbled in where required, and not unfrequently succeeding as well as those sown in the rows. This plan may not be necessary this season, but is mentioned in case blanks occur. Mice are enemies to the Pea grower, but if the seed is moistened and coated with red lead it is not liable to be interfered with. William I. sown on a warm border or in the open early in March will form a good succession to those transplanted, or a close succession to one of the many variously named extra-early round-seeded sorts. Early in March, or as soon as the ground is in good order, is a good time to sow a row or more of a good second early successional sort, such for instance as Telephone and Criterion, or Stratagem and Wordsley Wonder, the same sorts being sown again directly these are showing through the ground. This plan of sowing two sorts at a time, one being earlier than the other, at about fortnightly intervals, up till the end of June or early in July, rarely fails to maintain an even supply unless poverty of the soil or drought induces premature cropping. Good second early sorts are Telegraph, Telephone, Paragon, Stratagem, Nelson's Vanguard, and Bijou, these being closely followed by Criterion, Huntingdonian, Dr. Maclean, Wordsley Wonder, Nelson's Vanguard, Hairs' Dwarf Mammoth, Gladiator, Sutton's Satisfaction, Webb's Challenger, Duke of



Albany, and Hundredfold. For the main and late crops the best are Ne Plus Ultra, Kinver Marrow, Reading Giant, Triumph, Sturdy, Veitch's Perfection, G. F. Wilson, and Latest of All. We grow a small proportion of the above sorts, but it does not follow our selection would suit all alike, and I mention them as being among the best in the long list submitted to us.

Ne Plus Ultra is too often classed as a late sort only, whereas it may with advantage be sown early in March, and will then afford good dishes in about seventeen weeks, or from two weeks to three weeks longer than the ordinary second early and main crop varieties. The most profitable main and late crop variety I obtained from Mr. D. Thomson, and this vigorous, branching, and heavy cropping Pea I have ventured to name Drumlanrig Prolific. Mr. Thomson has grown it for many years—a sure proof of its value, productiveness, and good quality. Wordsley Wonder pleases everybody, while Bliss's Abundance is quite the reverse. Peas make the least haulm, and are most productive when sown on well-enriched firm ground, but in anticipation of dry hot weather the later sowings may well be made in Celery-like trenches, where they can be easily moistened at the root. The rows in every case ought to be about same distance apart as the height of the respective varieties.

**BROAD BEANS.**—If these were properly cooked, or rather served up as they are done here, the husks being removed after the Beans are boiled, they would be more popular than at present, especially with the middle classes. We make no attempt to preserve November-sown Peas during the winter, being content to sow as early in February as the weather and state of the ground permit. If we wanted any extra early we should sow small pots and plant out at the same time as the Peas were transplanted, and have done so repeatedly in order to obtain extra fine pods for an early exhibition. Beck's Dwarf Green Gem is distinct and serviceable, and may be sown thinly in rows 18 inches apart. Early Longpod, an old favourite, is usually dibbled out in double rows about 2 feet apart, and with this, to form a succession, may well be sown Broad Windsor Improved, the latter and Green Windsor being the best for the main crop and late supplies, much the same plan as to the time of sowing, being followed with these as with Peas. By far the most profitable early Broad Bean I have yet grown was kindly sent to me by Mr. D. Thomson, who has grown it for many years, and Veitch's Improved Early Longpod proves to be synonymous with it, the crop of this variety, according to Veitch's catalogue, having unfortunately failed last season. We had extra heavy crops of it and saved plenty of seed. For exhibition purposes Seville Longpod and Carter's Leviathan are preferred, and the seed should be sown on firm rich land about fourteen weeks before the pods are wanted.—W. IGGULDEN.

## THE PRIMULAS.

(Continued from page 148.)

**P. PINNATIFIDA**, Franchet.—A new species belonging to the Aleuritica section, and lately found in Yun-nan by M. Delavay, along with fifteen or sixteen others, and described by M. Franchet in the French Bulletin. With perhaps two or three exceptions they are all allied to Himalayan species, and from the descriptions seem to have no very characteristic differences from these types. The one named above is closely allied to *P. Wattii* of King, with more cut leaves and other minor differences. The flowers are said to resemble those of *Erinus alpinus*, only much larger. It was found on the glacier of Li Kiang in July, 1884. It is probable that at no distant date many of these Primroses will be in cultivation in our gardens.

**P. PLANTÆ**, Brugg, 1884.—A hybrid between *hirsuta* × *daonensis*, Brugg, which we have not seen in cultivation. We learn, however, that it is a very floriferous form and well worth looking after.

**P. POCULIFORMIS**, Hook. fil.—Under this name the plant was figured and described at tab. 6582 of the "Botanical Magazine." We are now told, however, that it has been previously described under that of *P. obconica*, Hey, and which in consequence will be the proper name to keep up. It was found by Mr. Mairies at Ichang Gorge in the interior of China while travelling for Messrs. Veitch of Chelsea, and was sent out by them in 1882. Without exception, as far at least as we know, it is by far the most floriferous Primrose in cultivation. A single plant kept growing in a cool house has flowered incessantly for the last two years. It is flowering still, and to all appearance in perfect health, and throwing up vigorous growth. It would make an excellent greenhouse plant, and when better known we have no doubt it will be extensively cultivated for winter decoration. A half-dozen or so plants placed in a group

would make a prominent feature all through the dull months, when plants with this excellent quality are most required. So far as our experience goes it is not likely to prove hardy in the open air unless the winter be exceptionally mild. Damp or stagnant atmosphere where fogs are prevalent seems to be its worst enemy; a covering of glass or handlight proves quite useless in this case. In localities where fogs are of rare occurrence it may perhaps stand in sheltered positions. It grows from 6 inches to a foot high, the leaves all coming from the root, broadly ovate oblong, in some cases almost orbicular, cordate at the base, toothed margins, wrinkled, and more or less hairy. The petioles are from 3 to 4 inches long. Flowers in umbels of about a dozen, surrounded at base with several small narrow bracts. Flowers an inch or more in diameter, lilac varying to almost white. Calyx campanulate, very curious, and hence arises the name *poeciliformis*. It ripens seed, but may also be increased by division of the root.

**P. PORTÆ**, Huter (sub-*Auricula* × *daonensis*, Kern) 1873.—Is a very interesting new hybrid, found by Leybold in company with *P. discolor*, which it very much resembles. When cultivated, however, the difference between the two hybrids is more readily recognised, as well as *P. daonensis*. It differs from *P. discolor* in the glandular hairy scape, the entire absence of meal in the teeth of the calyx, and also in the throat of the corolla. Its leaves are somewhat smaller and more freely covered with glandular viscous hairs. From *daonensis* it differs through the peduncles being from two to three times longer than the very short semi-circular bracts, its broader leaves, and the wine-red colour of its flowers. The calyces also are less glandular than that species. In fact *P. Portæ* is but sparingly viscous, while *daonensis* is amongst the most viscous of the Primroses. It is doing well with us on a western exposure in rich vegetable soil kept free with small pieces of limestone. It seems to be a rather slow grower, and to vary with rose-coloured flowers. Native of the Tyrol, flowering April and May.

**P. PROLIFERA** (Wall, "Asiatic Researches," vol. xiii., p. 372).—As yet this is a novelty, having been introduced only two or three years ago, along with other seeds sent from the Sikkim Himalayas by Mr. Elwes, and raised by the late Mr. I. A. Henry of Edinburgh. The first batch of plants from the home-grown seed has come into the hands of the Messrs. Veitch, a number of which we saw planted out in their nursery at Coombe Wood last year. The plants were small and apparently suffering from being too far south, as those at Edinburgh from the same seed were as large again and flowering most profusely. It will no doubt be much sought after when plants become more rife, and we hope to see it play a prominent part in the hands of the hybridiser. It belongs to the whorled-flowered set, and although the European kinds are most desirable in rockeries, they would be more desirable had they from four to six times the quantity of flowers as the present plant has. It is likely also to prove the hardiest of the whorled set, as it comes from a very high elevation, and therefore better able to stand our winters than *japonica*, *verticillata*, or *Boveana*. *P. Kaufmanniana*, Regel, is said to have two or three tiers of whorls; we have not, however, seen it with more than one. It requires a rich soil in a partly shady position. The leaves coming from a short stem are from 6 to 16 inches long, those we have seen an inch or more broad, oblong, running into a broad-winged petiole, irregularly toothed, and the under side covered with a straw-coloured meal. The flower stem is from 1 to 2 feet in height, with five or six whorls of sweetly scented flowers, pale golden yellow, from a half to an inch in diameter, each whorl containing about a dozen flowers surrounded by narrow acuminate bracts. It commences to flower in June, continuing until August. It inhabits the loftiest mountains of Java, from 8000 to 9000 feet elevation. Syn., *P. imperialis*, Jungh.; *Cankrienia chrysantha*, De Vriese.

**P. PSEUDO-ACAULIS**, Brugg, 1884 (*vulgaris* × *officinalis*, Brugg) we have not seen in cultivation in this country, although we have reason to believe it is grown on the Continent.

**P. PUBESCENS**, Jacq.—An interesting hybrid between *P. super-Auricula* × *hirsuta*, Kern, or *Auricula* × *glandulosa*, Sering, and said by the former author to have played a prominent part in the origin of the garden *Auricula*. This question is so full of interest at the present time, and is not unlikely to occupy attention at the Conference, that we may be pardoned for giving the views of the more prominent authorities. In the *Gardeners' Chronicle* for 1875, page 806, appears an excellent translation of a pamphlet written by Dr. Kerner. In speaking of *Clusius*, whose great love for alpine plants, and *Primulas* in particular, is well known. He goes on to say that *Clusius* endeavoured to naturalise in his garden a considerable number of the alpine species, especially *P. Auricula* and *P. glutinosa*. To the whole of these species so introduced he gave the name of *Auricula Ursi*, distinguishing each of the varieties or species by separate numbers. Of all these transplanted species *Clusius* finally succeeded in naturalising only two—the *Auricula Ursi* 1, or *P. Auricula*, and *Auricula Ursi* 2, or *P. pubescens*, roots



of which he transmitted to his friend Van der Dipt in Belgium, whence they spread over Germany and were known in Strasburg in 1595, and by the middle of the following century had come into general cultivation throughout continental Europe and England. Of these two Auriculas, however, the P. Auricula being a true species showed but little tendency to variation, was comparatively neglected, and in time died almost entirely out of cultivation; while P. pubescens, which is a natural hybrid, gave birth to a great series of varieties, the English, or farinose, and the Dutch strains being especially distinct, and by the close of the seventeenth century had become one of the most valued of all cultivated plants. The name Auricula did not originate with Clusius, but is used by Matthioli in 1555, and even by earlier writers. Clusius gathered P. pubescens in the neighbourhood of Innsbrück, then about 1794 in the Tyrol by Wulfen, and then again in 1867 by Prof. Kerner apparently in its original habitat near Innsbrück. In reference to the other side of the question Mr. Baker, who has given considerable attention to the subject, published in the *Chronicle* of June, 1885, his views of the origin of the garden Auricula:—"From the widely spread and well-known P. Auricula, L.," he says, "this P. pubescens differs in having leaves shortly pubescent all over the surface, and especially on the margin, conspicuously inciso-crenate in the upper half, pubescent bracts, calyx, and pedicels, calyx teeth more acute and as long as the calyx tube, dark lilac flowers, and the whole plant—leaves, bracts, pedicels, and calyx—almost entirely destitute of fine white meal. It seems to me quite impossible to take a walk through any Auricula show with this Primula pubescens in memory without feeling that Prof. Kerner's paper is very far from having exhausted the whole subject. My own view is that a very large proportion of the garden Auriculas are nearer to P. Auricula than they are to P. pubescens, and that the garden Auricula of the present day is the product of a complicated series of intercrossings, of which P. Auricula, Balbisii, veuusta, and pubescens have also entered." Stein believes that our very dusty English Auriculas are not only relatives of P. pubescens, but we get them through the fertilisation of this hybrid with P. Palinuri. P. pubescens grows from 3 to 6 inches in height, flowers in umbels, a dozen or more in each, dark lilac or brilliant rose colour, with golden-yellow eye; leaves obovate, cuneate, 2 or 3 inches long, pubescent all over, the upper half being crenate. Tyrol. Flowering April and May. Syn., hirsuta, Vill.; rhaetica, Gaud.; helvetica, Don; alpina, Reich.; villosa, Ait.; microcalyx, Lehm.—D.

### OPEN-AIR PEACH CULTURE.

Not a few persons appear to imagine that Peach trees cannot be grown to fruit so satisfactorily on open walls as they used to be in years gone by. This is erroneous, and the sooner the delusion is dispelled the better. The want of cultural attention is the foundation of the imperfect examples of Peaches seen at the present day on open walls. Before entering on details I wish to say a few words on the training of the trees. We frequently hear it stated that gardeners in past days spent much more time than was necessary in the production of their trees, that the culture now practised is more to the point, and that the results, according to the time spent on the trees, are superior. This is the argument at the present day, but is it not more fanciful than real? The originators of so-called new methods generally go to extremes to prove their case, and their ideas are taken for granted by younger men and used as a cloak to cover slovenliness in management. Whether the old gardeners went slashing about their trees wholesale for the first four or five years of the trees' existence, as we are led to suppose they did, I do not know; but as long as I have been connected with private gardens and nurseries the trees have been grown on the rational principle, and I maintain that they can be grown under this system so as to produce far more satisfactory results as regards fruitfulness, and with far less trouble in after years, than when the trees are of irregular shape and the branches badly trained.

During the first years of the tree's existence it takes no more time whatever to lay the shoots and main branches straight, and to keep the tree well balanced, so forming a handsome example, than if the shoots are laid in anyhow and often crooked, as some suppose to save time. Well-balanced trees with straight branches denote rational treatment, and instead of being "tree worship in its worst form" is tree culture in its best form. I maintain that not only is no time wasted in securing the shoots straight as growth proceeds, but in after years not nearly so much time is required to keep the trees in order as those treated in the higgledy-piggledy fashion, and well-trained trees are certainly not less productive than those fastened to the wall irregularly. I have more than once been amused when showing well-balanced trees to strangers to hear them remark that they "could not spare time to train them so well;" but they could find no fault with the crops.

The soil best adapted for the Peach is a calcareous loam, with the under stratum either of the chalk or limestone formation. Where a soil of this description does not exist naturally the site must be prepared similarly to when making a border for indoor culture, care being especially taken with the drainage, as a dry subsoil means warmth at the roots. In moist parts of the country, and where the soil is cold or clayey, the border should not be more than 20 inches in depth and 8 feet in width, and should be made above the level of the ground. The fertility of the soil must be maintained by top-dressings. I have now in mind a grand wall of Peach trees, which bear heavy crops annually. The border is of the same width and depth as stated above, and is above the ground level. Their culture can be summed up in a few sentences: Protection from frosts whilst in bloom, freedom from insects, plenty of water during the summer months if the weather prove dry, mulching with equal parts of lime rubbish and well-pulverised horse manure, the growths and main branches evenly distributed, and after the fruits are gathered the old bearing wood cut out, so that the bearing wood for next season receives full light and air are essential. On warm evenings through the summer months the foliage is much benefited by a good shower-bath of tepid soft water applied with the syringe, or, what is better, the garden engine. We have used clear soot water with marked benefit to the foliage, and it also tends to keep red spider away. Black aphides are especially to be guarded against, for when these gain a footing it is "all up" for the present and following season's crops. The best antidote we have used is a quart of tobacco water to three gallons of soft water, heated to the temperature of 120°; syringe the trees with this on mild evenings, and early the following morning, before the sun gains power, syringe with clear water.—A YOUNG.

### ORCHID NOTES.

MANURE FOR ORCHIDS.—I must congratulate "An Amateur" on the able manner in which he is dealing with the "Hints on Orchid Culture." I have read his notes with much interest, and now write to give a little of my experience with manures for Orchids.

It is very likely that there are various manures most suitable for various genera of Orchids, but my experience is very limited both in regard to the number of manures and genera experimented upon. The only artificial manure I have tried is "Clay's Fertiliser," and its effects on terrestrial Orchids have been beneficial, but when used for several epiphytal species it has killed the sphagnum and been of doubtful utility to the plants. A friend had a similar experience with another artificial manure upon several species of *Odontoglossums*—in fact, their roots were partially destroyed; but as I am not quite sure as to the identity of that manure I will not attempt to name it.

The manure I have used with great advantage consists of half a peck of soot and half a bushel of fresh horse manure placed in a bag and suspended in a barrel of rain water. This liquid manure is used in varying strength for all kinds of stove and greenhouse plants as well as Orchids, and for general utility and safety I find it difficult to surpass. In its application to Orchids the terrestrial kinds have it once a week; when in full growth the colour of strong tea, or if given twice weekly it is more diluted. This same manure I have applied advantageously to *Cœlogyne cristata*, *Miltonia spectabilis*, *Cypripedium barbatum* and *C. insigne*, *Oncidium ornithorhynchum*, *Odontoglossum Schlieperianum*, *Lælia purpurata*, *L. anceps*, *Pilumna fragrans*, *Stanhopeas*, *Acropera concolor*, *Lycaste Skinnerii*, *L. gigantea*, *Brassia verrucosa*, *Zygopetalum Mackayi* and *Z. maxillare*, *Epidendrum vitellinum majus*, *Phalænopsis Schilleriana*, *Dendrobium crystallinum*, *D. chrysanthum*, *D. chrysotoxum*, *D. cretaceum*, *D. crassinode*, *D. Devonianum*, *D. fimbriatum oculatum*, *D. macrophyllum (superbum)*, *giganteum*, *D. nobile*, *D. Paxtoni*, *D. Parishii*, *D. primulinum*, *D. heterocarpum philippinense*, and *D. Wardianum*; and in all cases its use has been attended with most satisfactory results. I believe the cause of the improvement is the ammonia the manure contains, and possibly by a per-centage of carbonic acid, but that would be very small.

What is the reason that many Orchids appear to have a great liking for charcoal? Is it not because the carbon of the charcoal has an affinity for the ammonia in the atmosphere, and thus absorbs and retains it for the use of the Orchids? There is a very common impression amongst gardeners that plants show a liking for charcoal for its own sake, but I am informed that is a popular error.—A NORTHERN ORCHID GROWER.

TREPPO.—In your issue of the 11th inst. your correspondent, "An Amateur," in his very able and interesting "Hints on Orchid Culture" refers to the introduction of Trepho as a substitute for peat for growing Orchids, and perhaps you will permit me to inform your readers of the facts of its introduction. Some two or three years



past when travelling in Bavaria, seeing some remarkably healthy sphagnum growing with a most unusual luxuriance of several inches of that exquisite lively green all Orchid growers desire to see under their plants, it occurred to me to try and chemically treat this moss so as to make it a medium for retaining moisture without souring or rapid decay, and after many experiments over a period of two years I found that by treating live sphagnum with borax, ammonia, and other ingredients, and then pressing it into blocks by hydraulic pressure, I obtained an article that kept quite sweet when up and used for potting, or retained in square blocks, in baskets, or on rafts for a period of eighteen months or two years. After giving this article so prepared a fair trial in potting, blocks, &c., I found even *Sophranitis grandiflora* and its varieties to plump out its pseudo-bulbs when planted on a block of Trepho as I had never before seen under culture in this country, whilst the baskets containing the square block upon which I planted the imported pseudo-bulbs were not dipped frequently for three or four days. Speaking of this to Mr. B. Field one day he begged of me to have a quantity of Trepho prepared for him. Several amateurs and growers having proved its value had been inquiring for the article, hence I had a few tons treated with ammonia, sulphates, borax, &c., on the formula I had previously proved. May I add that Trepho should always be used with the grain or layers perpendicular and not flat, to enable it to give off the moisture more freely?—MARCUS H. VOSS, *De Montfort House, Streatham, S.W.*

### ROSE PRUNING.

MANY an article I have read in the Journal under this heading. My present object is not to advise, but condole. By this time most exhibitors have made up their minds and have fixed plans about pruning; but few, I apprehend, ever anticipated—at least here, in S.E. England—finding it impossible up to now, the middle of March.

I had the advantage of mixing to-day in very high society, from a rosarian point of view, but heard nothing about pruning, though plenty about the effects of the late frosts. It was considered that the frosts of March and the perpetual changes in February have done far more damage than all the sharper earlier frosts of the season, and that when pruning does begin it will be necessary in many cases to cut very close.

One friend had made a feeble attempt to prune, but had been immediately snubbed by the weather, which has been, indeed, exactly my own case also. Neither was it held there was much present hope of change of weather, though that is entering on a most perilous path of prophecy.

I was much tempted to take away the fern at my usual time, the end of February, but was dissuaded by my gardener, who asked me "how I should like to part with my own great coat." I am now rejoicing in his higher wisdom. When pruning can begin it will come with a rush, and the captains of thousands will have to call for assistance. Perhaps they already reckon upon doing that.

The simple rule, the good old plan,  
Sufficeth them.  
That they should wait who have the power,  
And they should prune who can.

—A. C.

### SYRINGING VINES.

IN your last issue "A Kitchen Gardener" recommends syringing Vines in order to obtain a humid atmosphere. He says, "On dull days the Vines should be syringed at least once, and in bright weather they should be syringed twice." Is this right? I would ask. It cannot be denied that a humid atmosphere is most important to the well-being of the Vines, but I have yet to learn that the best way to attain that end is by syringing. I have been a witness to many evils resulting from the use of the syringe on Vine leaves and fruit, especially where only hard water could be had; and many gardeners are not able to obtain soft water, which is undoubtedly best for all purposes.

For my own part I would much rather bring about the desired end by damping the paths and all available spaces, but not the foliage. By this practice and keeping the roots well supplied with water I was able to go through last season without red spider or any other insect on the Vines under my charge, and long after the fruit was ripe and cut they retained their foliage green and healthy.—JAMES POUND, *Reading.*

### SOLANDRA GRANDIFLORA.

THIS belongs to a splendid genus of plants named in honour of Daniel Charles Solander, LL.D., a Swedish botanist of great celebrity. He was the companion of the renowned Sir Joseph Banks in the memorable voyage of discovery round the world, and was the collector of the botanical notes made during that expedition, and which are now preserved in the British Museum. The plant, a bloom of which we figure, is by no

means commonly to be met with in cultivation. This is not, however, because it is not beautiful, but rather that it is somewhat shy in producing its flowers. Besides the flowers being strikingly attractive by their Brugmansia-like form and pale yellow colour, the foliage is also agreeable, and the plant is worthy of being cultivated in our stoves. For a number of years after its introduction in 1781 this plant did not bloom. It was propagated and grew luxuriantly. The treatment necessary for the production of flowers was found out by accident, a plant being overlooked and left in a dry stove at Kew. This plant produced foliage of only moderate luxuriance, and produced a flower at the extremity of every shoot. This suggested that a period of rest was necessary, and on its



Fig. 99.—*Solandra grandiflora*.

being afforded the difficulty in blooming this plant vanished. The plant is propagated from cuttings, which should be grown on in loam and peat in a brisk heat and with liberal supplies of water until it has attained a good size. Water should then be gradually withheld until the leaves wither and drop off by drought, and the plant will seldom refuse to flower profusely. It is a free-growing plant and a native of Jamaica, thus requiring heat to grow it, yet a distinct season of drought and rest to induce the production of its beautiful flowers.—S.

### NOTES ON THE WEATHER AND VEGETATION.

WE have received numerous communications concerning the weather from correspondents in various parts of Great Britain, of which we can only publish the following this week. It will be seen from them that low temperatures have been experienced in several districts, while in the neighbourhood of London the most severe frosts have ranged from 10° to 20°.



The weather has continued dull and cloudy during the past week, a keen north-easterly wind prevailing generally. Green vegetables are rising to extravagant prices, and no progress in sowing for spring crops can as yet be made.

AT a meeting of the Royal Botanic Society held on Saturday last, Mr. W. Y. Low in the chair, Mr. C. Schoell was elected a Fellow of the Society, and the names of several others read for ballot at the next meeting. There was exhibited at the meeting a series of charts from the Society's Sunshine Recorder, from which it appears that the total of sunlight registered during February was no more than seventeen hours, or less than one-fifteenth. During March, however, only two days as yet have been sunless. Mr. G. J. Symons, F.R.S., gave some remarks upon the severity of the recent weather. He pointed out that the mean temperature of every week this year at Greenwich had been below the average, and as much as 7° or more below in several of them. Mr. Symons exhibited a diagram representing the temperature at 1 foot below the surface for each day this year, which showed that from January 1st it had almost continually fallen until the present date, and is now 11° colder than on the corresponding date in 1882. Moreover, the temperature at 3 feet below the ground, 33.4°, is as low as at 1 foot, showing a penetration of low temperature extremely unusual, and due solely to the persistency of the low temperature, for no short frost has ever produced such an effect. In the discussion upon the effects of the extreme cold upon vegetation which followed, Mr. H. S. Manning said there was every reason to hope that by retarding the flowering season of our fruit trees the cold would benefit agriculture.

MARCH, 1866, up to this date (9th) will be long remembered in this part of Derbyshire for its extreme coldness. The following temperatures were registered in the kitchen gardens during the past few days:—March 4th, at 7 A.M., 27° of frost; 5th, 26°; 6th, 18°; 7th, 34°; 8th, 26°; 9th, 12°.—OWEN THOMAS, *Chatsworth Gardens*.

THE wintry weather is becoming with us a somewhat serious matter. We have still, as we have had for a long time, a considerable depth of snow, covering everything and preventing all ground work. Green vegetables have almost entirely disappeared and cannot be replaced for a long time to come. There is still no sign of the cold weather leaving us. Our thermometer at its lowest point a week ago was down to 10°. At Wakefield it appears to have been even more severe than with us, and I am told they have a greater depth of snow.—W. K. WOODCOCK, *Sheffield*.

THE lowest point registered here each night between 6 P.M. and 6 A.M. from March 5th was as follows:—Friday morning, 9° above zero, 23° of frost; Saturday, 7°, 25°; Sunday, 5°, 27°; Monday, 1°, 31°; Tuesday, 11°, 21°; Wednesday, 11°, 21°. We are getting well into the fourth month that the lakes here have never been clear of ice.—FREDK. TAYLOR, *The Shrubbery Lodge, Welbeck Abbey, Worksop*.

ALL who take an interest—and who do not?—in the state of the weather must be struck with the severe aspect it has assumed since the beginning of the present year. Nor does it as yet give signs of relaxing its grip—24° of frost on the morning of yesterday and 14° to-day, the ground covered with snow, in many places as deep as the dykes are high. Farmers, especially Highland sheep farmers, are to be deeply commiserated for the enormous cost they have been obliged to incur to save their stock from perishing, and the nation generally must suffer severely in its best interest unless we get an immediate and radical change of weather. From such signs as are at all reliable, I fear this prospect is not well founded. In our latitudes we are, as is well known, very dependent for the genial and growing warmth of our climate on the influence of the Gulf Stream. Scientists have proved that this influence has varied at different periods of the earth's history from little to much, and I fear there are indications that it is going in the former direction at the present date. For twenty years we have not had more than three thoroughly genial, warm, growing summers—such weather as leads to the production of full agricultural crops both as to quantity and quality. I appeal to farmers to say if in this I am wrong. Thirty to fifty years ago we had bad seasons, but they were the exception then; they are the rule now, and good ones the exception. Low as the prices of agricultural produce are, and heavy as this must bear on the prosperity of agriculture, the position is greatly aggravated by a diminution of at least one-third of what, under more favourable circumstances as to weather, should have been the return from the soil. This has more to do with the present dullness of trade than is generally suspected. So much for the past. What of the immediate future? I confess that I do not think the prospect bright. Men who have made the subject a study show that our part of Europe derives one-third of the warmth of its climate from the warm water of the Gulf Stream and two-thirds from the sun. The sun is likely to do his duty as of old, but I fear the Stream is failing in its performance.

The circulation of the water of the ocean known as the Gulf Stream is great or less in proportion to the difference of temperature of the water at the Equator and the Arctic Circle. Now, during the present winter the weather has not been exceptionally cold in the Arctic regions from a normal point of view, while it has been exceptionally cold, for instance, in the neighbourhood of the Gulf of Mexico, from which quarter the warm water of the Gulf Stream proceeds across the Atlantic to our shores, by its influence both mitigating the severity of our climate and adding by its

humid warmth to the produce of our soil. When the waters of the Equator are very warm and those of the Arctic Circle very cold, the rush of the warm Stream in our direction will be greater, and *vice versa*. The denser cold water of the Arctic by its gravity falls into the Gulf of Mexico under the warm water, and, so to speak, pushes it out, compelling it to come across the Atlantic and occupy the space it has left—exactly guided by the same law which makes heating by hot water with boiler and pipes possible. Now, what are the prospects that this circulation will be defective this summer? The first is that there has been some defect in the case of the boiler—the Gulf of Mexico—for in its own immediate neighbourhood there have been severe frosts; the Oranges frozen on the trees, and the trees that have stood a hundred years killed in Florida; in New Orleans, men frozen to death and trains stopped by snow. This is cold unprecedented there, and if this was so on land, it is fair to infer that the sea came under the same influences; consequently we cannot expect so liberal a flood of warm water from that quarter as if the winter there had shown no abnormal signs; and in the second place, there is no reason to suppose that the water of the Arctic Circle is abnormally cold at present.

I, however, sincerely hope I may be mistaken, and that in spite of appearances we may have one good, genial, old-fashioned summer, giving us a bountiful harvest, which I believe will do more to revive the drooping interest of Europe than mere legislation can.—WM. THOMSON, *Clovenfords, March 8, 1886 (in the Scotsman)*.

THIS season will long be noted, and for years no doubt will be referred to, not on account of any extreme severe frosts, for we have had no zero records this winter, but for the long-continued cold weather which with frosts have prevailed more or less since last October. There has not been above two nights here since the new year that the thermometer has not fallen below freezing point; that was the last week in January, when no doubt many others beside myself took the opportunity to get in the earliest crops of Peas, Beans, and Spinach. It is doubtful whether these would not have been as well out of the ground, for ever since that time we have had a continuation of cold weather with snow and frosts ranging from 2° to 20° every night, and only on bright days, when the sun now has sufficient power to cause the temperature to rise above freezing point—although it has been freezing hard in the shade—has there been the least relaxation, and as I write (March 15th) there is not the least sign of a change for the better, the wind still blowing keenly from the north-east.

This has been a trying winter for gardeners, and many have felt the ill effects of it. To what extent the more tender shrubs and plants have suffered will not be discerned until later in the spring. In the kitchen garden we are feeling the more immediate effects. Vegetables are now at a premium, anything in the way of Sprouts or Greens selling readily at 3d. or 4d. per lb. at the greengrocers. Spring Cabbage plants are disappearing from the beds, and I am afraid there will be very few left alive, and what there is is much smaller than they were in November. Winter Lettuces are gone or going, the hardy Brown Cos alone struggling for existence, and Winter Spinach and other vegetables are in the same condition. Those who have taken the precaution to sow some early varieties of vegetables in boxes and placed in gentle heat, ready for pricking off into other boxes or frames when large enough, will find the benefit presently. Such varieties as Ellam's Early Cabbage, Early Forcing Cauliflower, Early Paris Market Lettuce, a little Spinach sown in 60-pots and placed in a cold frame, American Wonder, or Veitch's Selected Early Pea, and a few Early Mazagan Broad Beans, should be sown on strips of turf and placed in a slight heat, to be hardened and planted out when the weather is favourable. I should advise those who have not already done so to lose no time, and thus try to tide over the emergency, for I am afraid there will be many gaps in the early-sown out-of-door seeds this spring.

Though we despair when looking at our losses, or frown at the want of sun for early forcing, and feel grieved at the crippled condition of the flowers of the choicer occupants of the house for the want of solar light, there is still a bright side to the question. Although the weather has been sadly against those who have had landscape work or alterations in the shape of turf-laying or shrub-moving or planting to do, we have not had such a season for years for wheeling or carting manure on land, and for shrubbery cleaning, as we have had this winter; and many an old rubbishy corner or shrubbery, I venture to state, has been cleaned out, that has been neglected during the last few open winters, and the land no doubt will reap the benefit of it. Everything at the present time is as backward as in the first week in January, no signs of life in anything except the Snowdrops and Winter Aconites, a Crocus or two in the more sheltered places, a stray flower or two of *Scilla siberica* and *Primulas* out of doors, so with an ordinary run we may look hopefully forward to a good fruit season, as the flower buds are kept back safely at the present time.

To show the disparity between two seasons within a year of each other I append a few notes that were made by me on March the 16th, 1884, showing the condition of plants out of doors at that time after an exceptionally mild winter. They may be of interest to some of your readers. This was noted as the Apple year, when the Apple Congress was held.

The whole winter months very mild, open and dry; the previous day soft, mild breeze with sunshine. This day thermometer 75° in the sun (at night ten o'clock thermometer 50° temperature). Gloire de Dijon on the house has been in flower the whole winter, and is just shedding the last blossoms; Clematis montana on the lodge is throwing out foliage and flower buds, the first buds just opening; Lilacs are showing bloom on the



upper branches; *Berberis Darwinii* is hanging in golden clusters, ready to burst into flower; *Mahonia aquifolia* in full bloom; *Laurustinus* also in full flower and very clean; Red Flowering Currant (*Ribes sanguineum*) bursting out in full flower and foliage, the first flowers open; *Forsythia viridissima* in full flower in shrubberies; *Ceanothus rigidus* and *Berberis tenuifolia*, on a conservatory wall, just showing colour; Almond trees at their best and in full beauty; double Thorns are bursting into growth; the old orange-flowering *Kerria japonica* just going out of flower; the Brushwood of the large Elm trees pushing out their green shoots half an inch; the Poplars and Elm trees in flower; Crocuses in full bloom in borders; red and white Daisies are flowering in beds; Wallflowers are in bloom, and some spikes of the old double yellow Wallflower cut to-day; bedding Pansies in beds just pushing up flower buds; Violets in beds at their best; Hyacinths in borders in beautiful bloom; Mignonette is in flower, and have been the whole winter; two standard Plum trees in full bloom; Apricots and Peaches in full bloom on walls; Pears and Apples bursting; Gooseberries are in leaf; Currants coming out fast. Kitchen garden crops.—Turnip tops are a foot high; early Radishes, Lettuces, Turnips, and Spinach are up; early Peas about  $1\frac{1}{2}$  inch high; Veitch's Selected Early is the forwardest, and William 1. next.—C. ORCHARD, *Coombe Warren Gardens, Kingston-on-Thames.*

THE weather in Devon has been and still is very severe, and although there have been several days of sunshine, Dartmoor and the surrounding hills are still covered with snow; and the frost during the month has been very sharp, with cold easterly winds. On the 3rd inst. the thermometer registered 16° of frost; and on the 6th, 15°; and the 10th and 11th 13°. The coldest night that we have had during the winter was on the 10th of December, when the thermometer registered 17°. Notwithstanding the hard frost, we have been able to get in our crops of Parsnips, Onions, and early Carrots on bright days. In some places the Spring Cabbage are almost a failure, and nearly half of the Broccolis have been killed, and those that have been saved will be very late. Apricot blossom, which I have known fully open by the middle of February, is just beginning to expand. The farmers have great difficulty in obtaining sufficient food for their cattle, the root crops being in many places a failure, and instead of grass growing it is diminishing.—L. G.

THE winter has been peculiar on account of its short alternating periods of comparative mildness and low temperatures. Generally, we find a difficulty in getting ice in sufficient quantity for storing, but this season a plentiful supply was secured before Christmas, and several times since quite as large a supply could have been had. We have not experienced such low temperatures as in some years, 20° of frost being our lowest register; but the rapid changes from heat to cold, and again from cold to heat, have been most hurtful to vegetation; *Schizostylis* has been killed, Lettuces succumbed very early in the winter, so did Globe Artichokes; Violets braved it for a while, but gave up in January and are now quite bare. Old Laurels look very bad, and old Roses will have a large amount of dead or half-dead growths to remove. Hardly any spring flowers have as yet bloomed; we have Snowdrops, Winter Aconites, and some Hellebores, but no Primroses, Polyanthes, Anemones, Sisyrinchiums, early Daffodils, nor Pansies, as we have often had at this time.

On the whole the winter has been very suitable for forwarding work. We never had better nailing weather than was experienced in the early part of February; but for the past four weeks it has been almost too bad for anything. We cannot get on to the ground. Frosty east winds make nailing impossible; potting bedding plants, cleaning hothouses, and renovating old implements, stake and label making cannot go on indefinitely, and we find it becoming a pressing question what to do next. Still we are comparatively favoured here. Not so very far away neighbouring gardens were isolated by snow blocks for days. We hear of one case where the workmen had a week's holiday. Our March register has been low, most nights 6° to 9° of frost, on the 6th 13° of frost, but we hear of from 20° to 29° of frost in a neighbouring county, and in the north of England of 6° below zero on the same night.

As to cropping, we have only Peas and Spinach sown. Two sowings of various vegetables have been made in heated frames, but these never do so well as plants raised in the open. The immediate prospect is that no garden ground work, no seed-sowing or planting can take place with the best of weather for another ten days, and of course that may be indefinitely lengthened should no change occur.

As a matter of course, coals have been going with great rapidity and there is very little to show for it. What a great magician is the sun! and how little can we do to make up for the lack of his favour. Such times teach us how very little indeed. With regard to fruit prospects, Strawberries have been quite blackened; but genial after weather will put that all right. Other hardy fruits, though not yet on the move, we expect to do well if favoured with a fair season. The autumn of 1885 was a lengthened and good one, and it only needs a summer of a like favorable nature to make this a good fruit year like the last. In a season like this we shall take the precaution of erring on the late side with regard to seeding, sowing, and planting.—B., *East Lothian.*

#### SNOWDROP POTATO.

MR. IGGULDEN says (p. 157) that the above Potato is not distinguishable from Snowflake, but I think he makes a mistake. Half a dozen years or more ago Snowflake was grown here for several seasons, and although we found it a heavy cropper it was one of the first and worst

affected by disease. Its quality when cooked was not by any means first-rate, and, like many more varieties which have been tried here, it was given up. Many cottagers and farmers in the neighbourhood also tried it, and all have given it up for the reasons above named. Three or four years ago, and when Snowdrop was little known, a reader of the Journal in Northamptonshire sent me a few tubers in exchange for some Tomato seed, and he gave it such a good character that I felt sure that I had secured a first-rate Potato, and it has really proved to be so. We have planted more of it every year, and find it free from disease, a very heavy cropper, and first-rate quality. It is also one of the most handsome white kidney Potatoes with which I am acquainted, being of oblong form, and so shallow in the eyes that these are hardly observable. In this respect it differs widely from Snowflake, as this, like the majority of the American sorts, shows a great many eyes rather deeply set in the flesh. In habit of growth, form and quality of tubers, and in general character the true Snowdrop bears no resemblance to any Snowflake I have grown or seen, and I am positive in my opinion that Snowdrop has no right to be regarded as synonymous with Snowflake.—J. MUIR, *Margam.*

#### MIGNONETTE.

THE flowers of Mignonette are always welcome, and where a continuous supply of flowers is required seed should be sown at once in a cold frame. Place the frame in a warm sunny position on a border, and render the soil fertile by the addition of manure. The soil if moderately dry must be rendered firm, which will prevent the plants making a long straggling growth; if not, it is best left alone, for it is unwise to press the soil closely together when wet. Sow the seed on the surface and then lightly cover it with fine soil, or rake it in. Keep the frame close until the seed has germinated, when a little air may be admitted daily if the weather is favourable, closing it early in the afternoon to push the young plants into growth as rapidly as possible. When the plants are large enough thin them liberally, for nothing is gained by allowing them to crowd one another. Under these conditions the plants will grow rapidly and come into flower long before those sown outside, and the plants grown in pots can be dispensed with to save labour in watering.—D.

#### VINES—BORDERS—SPRING PLANTING.

THOUGH the winter has been severe Vines, both early and late, have started well. Some will attribute this satisfactory state of things to the discontinuance of artificial heat for outside borders, but few question the utility of the moist, genial, ammonia-charged heat of a bed of fermenting materials within the house. I do not advocate covering outside Vine borders with hot fermenting material, at least until the Vines have pushed growth and have active feeders, and roots in outside borders are less injuriously affected in a cold dry winter than in a mild wet one, but some frost resisting material over the border keeps the temperature several degrees higher than when saturated by heavy rains or snow. Good breaks almost invariably result from thoroughly ripened wood, and a condition of the border favourable during rest.

It is doubtful if our Vine borders are not deeper and wider than is essential. In limited borders renovation is more expeditiously effected, and Vines like porous soil full of fresh decomposing food-affording matter. Whenever the Vines in a house begin to fail the roots are deep or the border has become an inert mass. The remedy is to be sought in the removal of outside or inside border soil in alternate years, so as to prevent loss of crop, shortening the roots, and relaying them in new compost, consisting of rough turfy loam and old lime rubbish, using manure only as a mulch. In this the Vines make stout short-jointed wood, ripening well, and giving compact handsome bunches of fine berries colouring and finishing well.

Where spring planting is contemplated the situation and surroundings should be considered. If the border is high and dry it may be 2 feet 6 inches deep, but in low situations 2 feet is sufficient, the former resting on a foot of drainage, but in the wet site 18 inches depth of drainage is advisable. It is generally considered that anything of an open nature will answer for drainage. That may be if nothing is sought but the passing away of the surplus moisture to the drains. I consider, however, that the drainage has a considerable effect on the result. If we use gravel or stone of a close hard texture it will absorb but little moisture, whereas in broken bricks, old lime rubble, or even chalk, we secure a moisture-holding substance, which is being changed, whereby food otherwise inorganic is made available. Besides, the food retained by the drainage is sufficient to attract and induce a mass of hungry roots to enter it, much in the same way as we find with plants in pots the greatest luxuriance of roots amongst the drainage at the bottom of the pots. The drainage should be of such a kind as will not only allow the water to pass freely through the soil, but be of a moisture-holding calcareous character, though silica is not unimportant, as is evidenced in the employment of brickbats and stone of the sandstone formations. A sprinkling of crushed bones over the drainage is advisable, through affording phosphate, and a sprinkling of charred refuse is serviceable through its potash. Between the drainage and surface I do not think anything necessary but lime, with the silica inseparable from the employment of old moisture rubbish. I have tried stratified borders, but I do not think there is any advantage proportionate to the increased labour entailed in securing thorough and uniform moisture. Loam containing enough grit to keep it open is important. Bones are, no doubt, useful, as also is charcoal, but the chief points are good drainage, a porous soil,



and rich surface dressing. The border need not exceed 4 feet in width, and inside the house, the openings to let the roots pass into the outside border being bricked until the inside border is made to its full extent and occupied with roots, then the openings may be cleared and the roots allowed to pass out into properly prepared outside borders. A 4 foot width of border is quite sufficient for a year, and is far better than a great width of border which the roots may ramble through, but do not fully occupy until several seasons' growth has been made, much valuable matter being wasted.

Vines in a growing state that have been cut back can be planted as soon as the border is prepared. They will grow away at once and under good treatment fill the house with fruitful wood before the end of the season. If a full crop is wanted the year after planting, supernumeraries should be planted, and these must have the laterals stopped at the first joint, the cane or lead being stopped when 8 or 9 feet long and the laterals allowed a little freedom, but on no account must the foliage be allowed to interfere with or deprive the main leaves of full exposure to light and air. The permanent Vines must be allowed more freedom of lateral growth, the object being to secure a vigorous but at the same time healthy growth with abundance of roots and a few well-developed buds at the bottom of the trellis on well-ripened wood for cutting back to in early winter.

The narrow borders, whether inside or outside, should be mulched with short manure, kept moist to induce the roots to run along the surface, as if the surface be dry they will strike down to the drainage in quest of moisture. The object should be to get surface roots and keep as many there as possible, so as to insure the thorough occupation of the compost with roots, for notwithstanding every effort the roots will get down, and the Vines exhibit a maximum of healthy vigour when the roots appear in mat-like profusion at and among the drainage. This usually takes place in the second year, though the results are not seen in the crop until the third, and which continues up to the eighth or longer, as the means adopted insure a continuance of surface roots passing through the compost to the drainage. Once lose the surface roots and the under roots will soon become less and fibreless, the Vines will show it in the cropping, and without awaiting further indications of coming disaster, prompt steps should be taken by carefully lifting the roots and laying them in fresh compost near the surface. The effect of fresh loam on Vines is magical, especially when sprinkled with bone meal, so that the decay of the vegetable matter of the loam is hastened.—G. ABBEY.



THE ROYAL HORTICULTURAL SOCIETY'S SCHEDULE of prizes and arrangements for the present year is just to hand. The dates fixed for the respective Shows to be held in the conservatory at South Kensington being as follows:—Promenade Shows, March 9th and 23rd, and April 13th; National Auricula Society's Show and Primula Conference, April 20th and 21st; Promenade Shows, April 27th and May 11th; Show of Pot Roses and Azaleas, May 25th; Show of Orchids, June 8th; Show of Pelargoniums, June 22nd; National Rose Society's Show, July 6th; Show of Flowers and Fruit, July 13th; National Carnation and Picotee Society's Show, July 27th; Show of Plants and Flowers, August 10th; Cottagers' Show, August 24th; Show of Grapes and Dahlias, September 7th and 8th; Show of Hardy Fruits, October 12th and 13th; Show of Chrysanthemums and Vegetables, October 26th and 27th. Liberal prizes are offered in the majority of the classes, and numbers of special prizes are contributed by the leading seed firms. The Council have decided to receive provincial horticultural and floral societies into association with the Royal Horticultural Society upon an annual subscription of five guineas. They offer them the following privileges.—The silver Knightian, the ditto Banksian medal, with the bronze Knightian and Banksian medals, to be given as prizes at the shows of the Provincial Society. A member's ticket is issued for the Secretary, and twelve single tickets, admitting the bearer to any one meeting or show of the Royal Horticultural Society.

— THE schedule of the ROYAL HORTICULTURAL SOCIETY'S PROVINCIAL EXHIBITION AT LIVERPOOL is also now issued. The Show will be held, as previously announced, in the Botanic Garden and Wavertree Park, from Tuesday, June 29th, to Monday, July 5th, this year, and prizes amounting to £1200 will be offered in competition. Numerous classes are provided—namely, 135 in the horticultural portion and twenty for cottagers and artisans, in all of which three or four prizes are offered, some being of considerable value. One of the principal classes is for

twelve stove and greenhouse, in which the prizes are £20, £15, and £10, though in two others for nine and six, £10, £7, and £5 are also offered. Orchids are liberally provided for, £20, £15, and £10 being offered for a group of twenty-five, arranged with Ferns, Palms, &c., and in two others the prizes range from £15 to £7. The Liverpool Horticultural Company also offer a cup, value 25 guineas, and 10 guineas in cash for the best twelve Orchids in flower. For a group of miscellaneous plants (300 square feet) the prizes are £12, £8, and £6. In other classes the prizes range from £8 to £7. Cut flowers and table decorations, bouquets, &c., have thirty-two classes devoted to them. Twenty-three classes are devoted to fruit, the prizes ranging from £8 to 10s. Twelve are appropriated to vegetables, including one for "the best collection of garden produce," a novel class which ought to bring out something interesting. Special prizes are also provided by Messrs. James Carter & Co., Sutton and Sons, and Webb & Sons, for vegetables. Medals will be awarded for the best exhibition of examples illustrative of the cultivation of plants, vegetables, &c., on board ship, and silver or bronze medals will be awarded in twenty-one classes for garden implements, structures, &c., together with one or more gold medals for the best general displays.

— AT this exhibition a department will be specially devoted to HORTICULTURAL AND BOTANICAL LITERATURE, SCIENCE, AND ART, which will probably constitute an important and instructive addition to the attractions. Section A is for the literature of gardening, including British and Colonial periodicals, educational books, standard works, foreign garden literature, models, diagrams, and apparatus, and specimens illustrative of grafting and budding. Section B is for technical art, including plans of gardens and structures; and Section C is for botanical and decorative art, comprising drawings, floral designs, photographs, chromo-lithographs, and flower painting on china or terra cotta. Though no prizes are offered, medals will be awarded in the last-named class, and no doubt numbers of amateurs and gardeners will assist in rendering this a representative exhibition. All applications must be addressed to Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, before June 21st.

— ONE of the large plants in the Percival collection of Orchids has just flowered in the nurseries of the Horticultural Company, Garston, and is a very fine form of *LÆLIA ANCEPS ALBA*. This plant was purchased as an imported piece, and is the first time of flowering in this country. The specimen has been divided into several pieces, and one or two plants have been added to collections in the neighbourhood of Liverpool.

— THE date of the OXFORD ROSE SOCIETY'S SHOW has been altered to July 7th, as the 8th would clash with the Bath Show. The alteration is made at the earnest solicitation of a number of exhibitors at both Shows.

— MR. W. BULL, King's Road, Chelsea, sends us some fine PRIMULA BLOOMS of excellent substance, good form, and varied in colour, from white to rosy crimson, purple and very bright red, a double form named splendens fl.-pl. being remarkable for its richness of colour.

\* — IN the House of Commons on Thursday last, the 11th inst., a vote of £112,619 was proposed for the ROYAL PARKS AND GARDENS but on the motion of Mr. Labouchere this was reduced by £50,403. There were not 150 members present, and the motion was only carried by a small majority, which cannot be supposed to represent the opinion of the House or the desire of the country. It is not likely that this extraordinary and ill-judged proceeding will be carried out, and we expect that the matter will be settled satisfactorily by the adoption of the original estimate. There is no part of the public revenue better applied than the comparatively small amount employed in the maintenance of the parks, and it is the last that needs the attention of would-be economists.

— M. CHARLES DE BOSSCHERE has issued a pamphlet of sixteen pages, giving an interesting description of M. ED. PYNAERT-VAN GEERT'S NURSERY IN GHENT at the time it was visited by the International Botanical and Horticultural Congress in August, 1885; an account of the foundation of the nursery, its subsequent progress, its principal features, and the most remarkable plants grown there now. A woodcut view of the nursery is also given.

— ON several different occasions it has been observed how well Messrs. R. P. Ker & Sons cultivate the CYCLAMENS IN THEIR AIGBURTH NURSERY. At the present time there are thousands of small plants growing in 2-inch pots, the earliest with three or four small dwarf leaves



and the remainder with one and two each. They are grown moderately warm in a light position to keep them dwarf and compact. The earliest of these will be repotted, until they are placed into 6 and 7-inch pots, and will by autumn be from 1 foot to 16 inches through. Such was their condition last year, and many of the plants carried from fifty to a hundred flowers each. To attain the best success the plants must be raised annually from seed, and kept growing the whole season without a check.

— IN the same nursery CROTON NEUMANNI is also conspicuous with its hold highly coloured foliage. It was raised from seed of that well-known variety, Baron James de Rothschild, but has larger foliage than its parent, and the crimson colour is deeper and more vivid. Its habit of growth is well suited either for upright specimens or for large bushes.

— MESSRS. WEBBER & Co. of Covent Garden have recently received a CONSIGNMENT OF PEARS FROM THE CAPE OF GOOD HOPE, consisting of Louise Bonne of Jersey and a variety which resembles Beurré Superfin. They are in perfect condition, and are in appearance equal to well-grown English fruit. We have had an opportunity of tasting the variety supposed to be Beurré Superfin, but the flavour is more like that of Beurré d'Aremberg, having all the briskness of that variety and none of the richness of flavour of Beurré Superfin. If this new importation proves successful—and there is no reason to suppose it will not—the season of dessert Pears will be prolonged far beyond what we have been accustomed to, and the short voyage from the Cape will insure their coming in good condition.

— AN East Lothian correspondent writes—"I once before sent you a note about the time for SOWING BEETS, some of the finest being thrust aside on account of size and coarseness, when the fault is found in sowing too early. Sorts of the Dell's Crimson type may be sown in April, Cattell's Crimson in May, and Veitch's Black about the middle of June, Goldie's should be sown at the same time as the latter. The two last named are fit only for cows if sown in April, earlier than the time mentioned, but sown late they are both really fine varieties, and good strain of the darkest colour."

— THE usual monthly dinner and conversazione of the HORTICULTURAL CLUB took place on Tuesday the 9th inst. The conversazione was opened by an interesting paper of Mr. Shirley Hibberd on the preservation of the British flora. A discussion afterwards took place in which Dr. Hogg; Mr. J. G. Baker, Kew; Mr. Nicholson, Kew; Messrs. Cousens, Drury, G. Bunyard, and others joined. At the close the following resolution was proposed and unanimously adopted, Mr. Shirley Hibberd remarking that great changes had been wrought from much smaller comments, and hoping that this would result in great good to our British flora—Resolved: "That this Club, deploring the extinction in many localities of British plants and Ferns, which tend so much to the beauty and enjoyment of the country, hereby undertakes to use its best endeavours to prevent this destruction, and especially invites all tourists to discontinue the practice of bringing away specimens from the places they visit, which in ninety-nine cases out of a hundred never live, and which can most probably be purchased at a nursery close to their own doors; and urges also on all professional collectors great care in obtaining plants, and, moreover, desires to impress upon managers of provincial shows the need of limiting the collections for prizes for wild flowers, which, they fear, tends to the wonton destruction of many plants."

— MR. G. R. ALLIS grows HELIOTROPE WHITE LADY remarkably well at Old Warden Park. The plants now bearing their large trusses of nearly white flowers were propagated from cuttings in August last, stopped about twice, and then placed into 5-inch pots, the size they are now flowering in. The plants have been brought into flower by the aid of warmth, and are beautiful decorative plants for flowering at this season of the year. These charming plants have six or seven main shoots upon them, with as many large trusses of flowers, and are only 9 inches to 1 foot in height. This is probably the best Heliotrope for winter and spring flowering.

— AN experiment on HASTENING GERMINATION is related by an American writer as follows:—"Last spring I had some Gourd seeds which I wished to sow, but which were mislaid until some time in June. As Gourd seed should be sown very early to allow time for the hard shells to soften, I concluded it was too late to sow them in the usual way, and could devise no better mode of atoning for lost time than by carefully

splitting their shells with a sharp knife and planting the germs without delay. In a very short time the plants appeared above ground, grew vigorously until frost came, and produced the only full and satisfactory crop of Gourds I ever raised."

— MR. ALFRED SLAUGHTER has sent us a sample of his ROSE TUBE. It is a tube within a tube, affixed to a base that enables it to stand in or out of boxes; in fact it somewhat resembles a small candlestick, and will no doubt answer well the purpose for which it is intended—exhibiting blooms of Roses.

— THE annual dinner of the SHEFFIELD FLORAL AND HORTICULTURAL SOCIETY was held March 9th at Mrs. Webster's Museum, Orchard Street. About fifty persons sat down to an excellent repast. After the tables had been cleared the chair was taken by Mr. T. Baker, who was supported by Messrs. T. B. Hague, W. W. Renton, C. Storey, H. Broomhead, G. Seagreave, J. G. Newsum, J. Spink, H. Morton, B. Newham, W. K. Woodcock, sen., and W. K. Woodcock, jun. (Secretaries). The following attended as delegates from other societies:—Mr. Heming and Mr. T. H. Wood (Leeds), Mr. G. W. Simpson and Mr. G. Wassell (Wakefield), Mr. W. Lockwood and Mr. Hall (Barnsley), Mr. Middleton and Mr. Taylor (Rotherham), Mr. W. H. Barnes and Mr. J. Shipman (Walkley), and Mr. C. Cook and Mr. J. Johnson (Sheffield and Hallamshire Gardeners' Mutual Improvement Society). The usual loyal toasts having been duly honoured, the Secretary (Mr. W. K. Woodcock, jun.) read letters of apology from Sir H. E. Watson (President of the Society), the Right Hon. A. J. Mundella, M.P., Mr. C. B. S. Wortley, M.P., Mr. Howard Vincent, M.P., and others. Mr. C. Heming (Leeds) in proposing "The Sheffield Floral and Horticultural Society," said societies such as that were productive of much good to all engaged in horticulture. They, in Leeds, were about forming a similar society, and hoped it would be attended with as good results as had the Sheffield Floral and Horticultural Society. Mr. John Haigh, in responding, spoke in gratifying terms of the benefit which the gardeners in the neighbourhood, both professional and amateur, had received from the Society. The Committee had no wish to make money out of it, but the funds were most economically managed, and no unnecessary expense was undertaken. In conclusion he remarked that the more good the Society could do the more gratifying it was to the members. Mr. W. K. Woodcock proposed "The Visitors and Kindred Societies," and in doing so spoke of the amity and good fellowship existing between almost all the floral and horticultural societies in the country.

— AT the ordinary meeting of the HUDDERSFIELD PAXTON SOCIETY on Saturday, March 13th, the President, G. W. Rhodes, Esq., in the chair, supported by Geo. Jarman, Esq., Vice-President, the members and friends spent a very pleasant evening. Mr. Jas. Inman of Leeds gave an admirable paper on "The General Principles of Gardening," and he did full justice to the subject. Mr. Inman proceeded to describe the proper position of the mansion, the laying out of the pleasure grounds for effect, the formation of lawns, shrubberies, geometrical garden, rosery, and conservatory, with the arrangement, decoration, and general management of the above, which he thought should occupy an easily accessible position in some part of the pleasure grounds unless attached to the dwelling house. The fruit and vegetable garden was next entered upon; soil, situation, quantity of seeds, varieties, rotation of cropping was commented on, strongly advising young gardeners to pay as much attention to this part of the profession as the glass departments; also the various methods of branch and root pruning to promote vigorous, healthy, and fruitful trees was most minutely described. The occupants of the stove, greenhouse, and forcing pits were also alluded to. Those present showed their appreciation of the essay by earnest attention, and by the hearty way they supported the vote of thanks to the essayist. The next lecture will take place on March 27th—subject "A Trip to Norway, with Notices of its Flora," by the President.

— MR. T. W. GIRDLESTONE sends us samples of the NATIONAL ROSE SOCIETY'S NEW MEDALS, and remarks that "The larger medal is struck from the dies designed to provide the silver and bronze medals, and you will notice that it is larger than the former medal, the design now consisting of a shield bearing the monogram of the Society, surmounted by the Rose, Shamrock, and Thistle, and surrounded by Roses of various types—Single Moss, Tea, and Show, with scroll and motto beneath—'Floreat Regina Florum.' The smaller medal, struck from the dies destined to furnish the gold medal, is more conventional in design—the shield bearing a Tudor Rose, with the initials of the Society in Tudor



capitals above, and scroll, motto, &c., beneath." The dies have been admirably executed by Mr. John Pinches, Oxenden Street, S.W., and are exceedingly tasteful in design. Such medals will indeed be worth winning.

### GARDEN ENEMIES.

MANY country gardeners are greatly plagued by the unremitting attention of the various members of the animal world which pick up a living in the vicinity of his charge, and which endeavour on all occasions to lay the products of his garden under contribution for their support. In addition to such garden frequenters as rats, mice, sparrows, and blackbirds, the gardener whose lot is cast in a strictly rural district may have also hares, rabbits, squirrels, pigeons, pheasants, partridges, and peacocks, besides a floating population of the smaller birds ready to help themselves as occasion may offer to any luxury that may be in season. It is just possible that by a little indiscretion in the treatment of those animals which are kept for sport, a gardener may do himself much harm with his master; for it must be remembered that proprietors of estates mostly place a far greater value on hares, rabbits, and pheasants than they do on their gardens, and if the gardener, judging from his point of view that it would be for his master's interest to be less careful of the life of any of these than of the vegetables, flowers, or shrubs under his charge, then most likely he would find there were more points from which the matter could be viewed than his own. Perhaps no one has been more bothered with these "vermin"—shall they be called?—than I have; but there has always been the consoling thought that neither the destroyers nor the destroyed were mine, and if it pleased their owner to allow things to remain so, there was no reason for heartbreak on that account. However, it has been my endeavour to lessen the mischief as much as possible, and hence these notes, which it is hoped may be of use to others placed in similar circumstances.

It is a somewhat curious fact, that either birds or animals which are allowed to feed on any given crop—and this applies to shrubs and other things—are most difficult to break of their habit. We have had certain crops which pheasants never touched for years, yet on being driven to these by lack of food they have ever since continued to attack them. Again, if blackbirds once attack Strawberries or other fruits, no matter how plentiful other food may by-and-by become, they pass it, while in seasons when their natural food is plentiful they do not attack fruit so much. Bearing this fact in mind, it will prove good policy to keep all these depredators away as long as possible. I have also found that both birds and game can be boycotted so effectually as to cause them to leave their old haunts altogether. But in order to insure an effectual cure the means taken must be effectual. As an instance, say a garden is overrun by pheasants, which make it feeding ground, breeding place, and, in fact, their home. In order to get rid of the whole tribe it will at once be seen that no half measures will do. Of course such pheasants are quite tame, and any attempt at frightening them off end in ignominious failure, the birds meanwhile showing by their behaviour that they are quite incapable of grasping the meaning of such a course of procedure towards them. The flowers and vegetables which pheasants are particularly fond of, of the former, Ranunculus, Crocuses, Anemones, and occasionally Lobelias and Sweet Peas in a very young state; of vegetables, Peas, Beans, the Cabbage family, and sometimes Lettuces; the young shoots of Asparagus and newly planted Artichokes are also laid under contribution sometimes. In order to disperse a colony of pheasants it is necessary that any of the products above named which they are in the habit of attacking should be thoroughly protected. This entails the netting of Peas and Beans from the time they are sown until they begin to flower, and if any of the others are meddled with they must also be netted. Coarse-meshed wire netting, rounded, and pegged down over the rows of Peas protect them until they are ready for staking, after that herring nets are required. Herring nets are also most suitable for other crops, only great care is necessary in seeing that the nets are so secured as to keep the birds out, as if they get in and get entangled in the nets the likelihood is that such netting will be put a stop to. A good way to save Ranunculus and Anemones is to grow them in beds covered with coarse wire netting. In large kitchen gardens it is next to impossible to keep hen pheasants from breeding. The only remedy is to send all eggs as found to the keeper, and in cases where young birds are brought out to get mother and brood removed without delay. Provided the above care be taken to net everything that the birds attack, and they are not allowed to feed in the garden, then it remains for them to move to other quarters. Where pigeons are troublesome the only certain remedy is to shoot the first comers, for if they are

allowed to feed for a time they are not easily kept down. The destruction of every nest in the vicinity of the garden is also very necessary.

With regard to hares and rabbits, it may be pointed out that much of the wire netting that is put up to keep these from shrubs, or out of gardens, &c., is of very little use for that purpose. It fails in three respects—in the mesh being too large, in the wire being too weak, and in the width being often too narrow. The size of mesh ought to be not more than  $1\frac{1}{2}$  inch, seventeen gauge being not a whit too strong, and where hares abound they cannot be kept off shrubs during hard weather if a less width than 30 inches is employed. This gives quite 24 inches above ground after a portion of the netting has been turned in and buried to keep rabbits from burrowing underneath.

There are numbers of dressing materials employed for keeping hares and rabbits from barking the stems of trees, but it is doubtful if a more efficient or a more lasting dressing is to be had than clay worked up with cowdung to the consistency of paint, and put on with a brush. We have found this a most excellent dressing. Tar is sometimes added, but we have not found it necessary to do so, the clay itself being sufficient to keep the animals from biting, while the dung makes it adhere for a long period. Squirrels require to be handled in exactly the same way as pigeons. Kill the first comers, for if allowed to feed unmolested for a while every squirrel in the district will come to learn of the boundless supply, and arrive for his share in company with wife and family. Squirrels are not easy to keep off wall trees; the only practical plan, if herring nets are used, is to keep them well out from the walls by means of forked sticks, using the nets doubled, and pegging the nets down on the fruit borders. Hexagon netting is of much greater value than herring nets, and with a little attention to watching squirrels can be kept from the more select fruits by means of this material.

I might add something about my experience with the smaller birds, which are here as sacred as game, something about rats, mice, wasps, &c., but would only add that the same remark applies to these as to the subjects proper of these notes—viz., that prompt measures, or even in some cases defensive measures taken before attack, is the only road to victory.—A COUNTRY GARDENER.

### ARALIA CHABRIERI.

MANY Aralias are now becoming favourites for decorative purposes, especially for tables, as the best of them are light elegant plants admirably adapted for this purpose. Aralia Chabrieri is gradually making progress amongst the favourites of this class, one great recommendation being its free growth. It is easily cultivated in pots of moderate size, and a compost of peat and light loam, the temperature of a stove being most suitable during the growth of the plant's, but afterwards they will endure a much lower temperature for some time without injury.

In the woodcut (fig. 40), kindly lent by Mr. B. S. Williams, who grows the plant remarkably well, the chief characters are well shown, he also refers to it as follows:—"A charming plant, with graceful pinnate spreading leaves, admirably adapted for table decoration. It is of medium growth, leaves alternate, in well-developed specimens about a foot in length; leaflets opposite, from 6 to 9 inches in length, linear lanceolate, deep green with a heavy crimson midrib, which gives the plant a Terminalia-like aspect." It has been awarded certificates at all the principal horticultural exhibitions in Great Britain during the past two or three years.

### HINTS ON ORCHID CULTURE.

(Continued from page 189.)

#### CULTURAL OPERATIONS.

POTTING AND BASKETING.—In all operations connected with Orchids it must be remembered that the roots cannot be safely treated like those of many plants in general cultivation; they are much more delicate and readily injured, consequently in potting or basketing much care is needed. If the old roots are adhering to the sides of the pots or the drainage, the pots must be broken, and these, or the pieces of crocks, placed in the new pots, disturbing the roots as little as possible. All dead roots must, however, be cut away, and if any of the others appear unhealthy, or if the compost was old or much decayed, they should be washed in tepid water. When it is desired to transfer a plant from a small basket to a larger one, and the roots are much interlaced amongst and adhering to the bars, as is often the case with epiphytial species, it is usually a safer plan to employ a basket of sufficient size to allow the old one being placed in it, filling



the intervening space with the compost. Pots should be thoroughly drained, the largest having smaller sized ones inverted in them, and the space round these filled with clean potsherds, or these can be used alone. For all large specimen epiphytal Orchids the drainage should be two-thirds the depth of the pot; for terrestrial Orchids less will be required according to the strength of the individual plant and the character of the species. Large pieces of potsherds are arranged hollow side downwards, but charcoal, or rough burnt clay, such as is termed ballast, can be used for the same purpose. Over this place a layer of sphagnum, and then put the plant in position, filling with the compost which may have been either previously mixed, or the peat, &c., can be introduced separately, firming it amongst the roots sufficiently to hold the plant steady, but not pressing it down as is practised with other plants. In the case of large heavy Cattleyas, Lælias, &c., it is sometimes needful to employ a few pegs, or a stake, to assist in holding them steady until established. It is advisable in most cases to raise the base of pseudo-bulbous Orchids slightly above

One reason for this is probably due to the fact that in baskets they do not suffer quite so quickly in hot weather, whereas blocks need very frequent attention in watering during the summer, or the plants may be injured beyond recovery. When an Orchid is to be grown on a block a little moss may be placed round the base of the plant, and the latter firmly fixed by a few pieces of copper wire passed across and nailed to the side or back of the block. In some cases the moss is not requisite, but it is safer for beginners to employ a little at first.

The time at which these operations require to be performed varies, for in their native countries Orchids commence their growth at very different periods; but it may be taken as a general rule that as soon as root or leaf growth is commencing potting or basketing can be safely done. In many species the commencement of activity is readily seen in the protrusion of young roots at the base of the stem or pseudo-bulb, and in others new growths will be seen pushing from the lower portion of the plant. The adoption of lower winter tem-

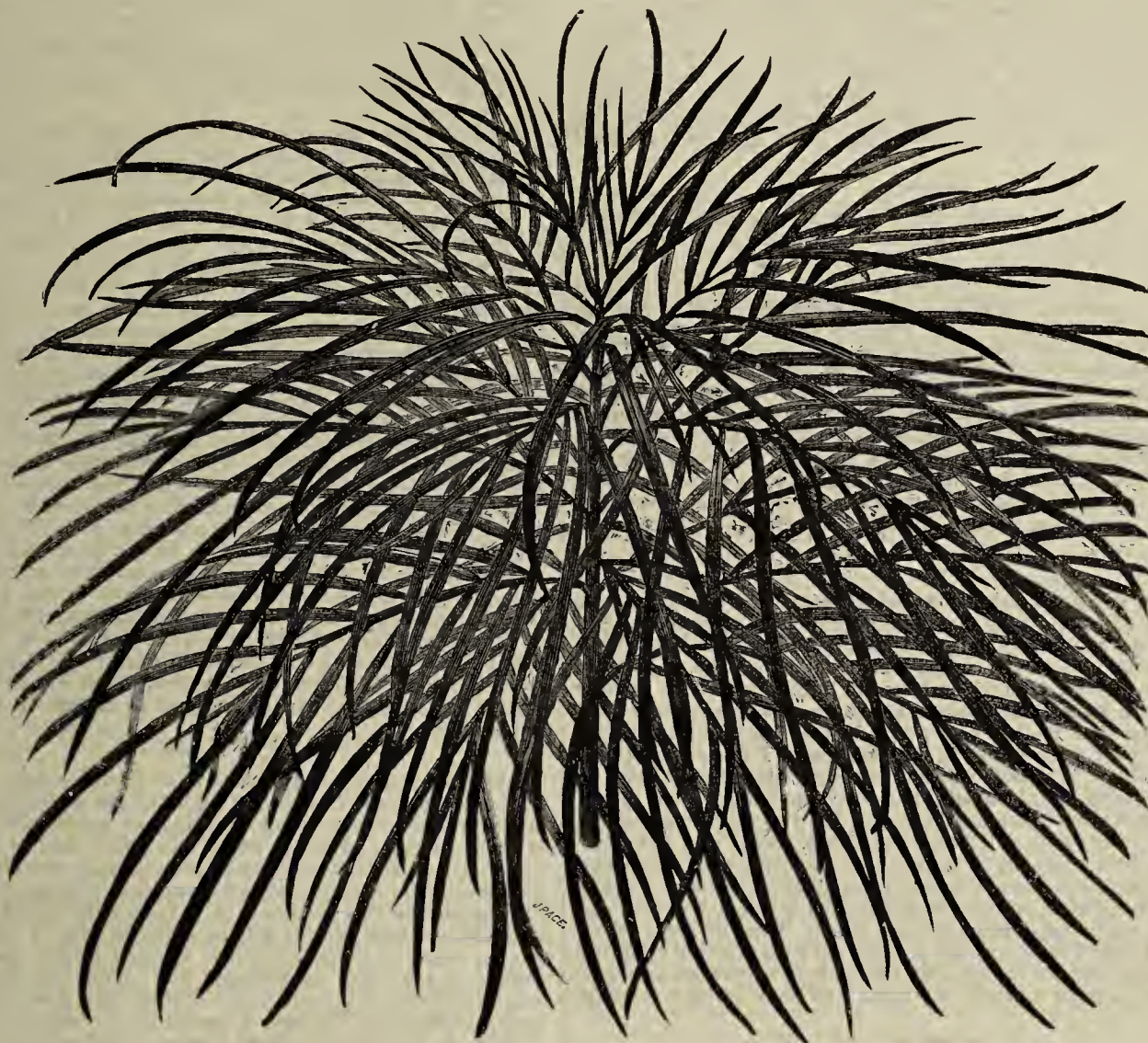


Fig. 40.—ARALIA CHABRIERI.

the rim of the pots, making an even rounded surface of peat, covering this with the selected sphagnum previously mentioned. Some have tried other native mosses, such as are usually found in abundance in woods or shady places, for this purpose, and in the cool houses they succeed well, having a pretty and more diversified appearance than the sphagnum; such material, however, needs very careful examination, or many destructive insects may be introduced with it. For a number of the more delicate epiphytal Orchids grown in baskets, potsherds, charcoal, or a few lumps of peat are sufficient, or the two former alone, rather loosely arranged, especially for species of the Stanhopea and Acineta type, which force out their flower spikes from the base in a downward direction. Orchids grown in the small shallow perforated pots already noted require scarcely anything but peat and a surfacing of moss. Blocks are not so frequently employed now as formerly, but there are some plants, like Cattleya citrina for instance, which from the nature of their growth are much better on blocks than in pots or baskets; but there are comparatively few strong-growing species which cannot be more satisfactorily grown in baskets.

peratures necessitates resting most Orchids which need that treatment in the duller months of the year, consequently growth generally commences in February and March, when the majority can be safely potted. But the rule previously given can be followed as regards those that start at other times; but for such as are growing to some extent all the year, like Odontoglossums, the potting season may be regulated according to convenience, and Orchids of the Vanda and Aerides type may be so treated whenever they are not in active growth, but preferably just before they start, and the early spring will be found the most satisfactory time for the majority. Some Orchids require repotting or basketing much more frequently than others, the strong, quick-growing species needing attention every year; the slower, more delicate sorts often thrive well enough for several seasons with only an occasional renewal of the surfacing. The latter should, however, be looked to every year, as it improves the appearance of the plants very much, and is beneficial to the young roots, which dislike old decayed materials about them.—AN AMATEUR.

(To be continued.)



## THOUGHTS ON CURRENT TOPICS.

THE subject of lime and its application is still under discussion. It is an important subject, on which a diversity of opinion appears to exist. An able correspondent, "A. L. G.," is evidently content to apply this mineral in homoeopathic doses. He may be right as regards the soil he has to deal with, but I am strongly convinced that there are hundreds of gardens that have been heavily manured for years, and hundreds of enriched Vine borders that would be quickly and permanently improved by generous applications of lime—indeed, as a rule a light dusting of lime has no marked effect on Vines and other crops in rich soil. Your correspondent is, in a measure, supported in his views by Dr. Caldwell (page 131), who quotes the old saying that lime applied to land tends to "make the father rich and son poor." But does not that depend on the son? Twenty-six years ago next April I was requested to make a large and then worthless plot of very strong land produce something. It had been deeply trenched, and the site had been previously an enclosure for cattle—a huge crew yard. More lime was applied than I have yet seen advocated in this Journal, and certainly the produce from the ground the same year greatly exceeded the aggregate total of the five years previously. The lime was more than paid for the first year by the enormous yield of Potatoes, and in one particular part where it was applied lavishly, as a little experiment, the crop was remarkable. This was an example of making the "father rich." I have quite recently been to see how far the heavy liming had made the "son poor." I found the land in splendid condition, and I suspect not many more productive plots could be found. In this case, which is not the one I previously referred to, the truth of another saying was revealed—"Lime is the basis of good husbandry."

YOUR correspondent, I think, attaches too much importance to the escape of ammonia into the air, consequent on the action of lime. His experiment of dissolving sulphate of ammonia and lime in water does not prove any such escape from the soil, but only from water, which is quite another thing. Ammonia liberated by lime is absorbed by soil of a loamy character—that is, containing clay, without which it is not loam. Ammonia is also absorbed and retained by humus, or black rich soil. This may be ascertained by mixing sulphate of ammonia in water and passing it through a large potful of either firm damp loam or soil rich in humus. The sulphuric acid, which is of little or no value, will pass through, but the ammonia will be left behind. It will not, however, be retained by a potful of sand. So far, then, from the ammonia which is sealed up in over-rich soil being lost by liberation, it is a distinct gain. This I have found true in practice, and over-manured Vines, Roses, and land generally have been greatly improved by liberal applications of lime.

If any reader of these notes has a bed of Roses in which the soil is almost a black soapy mass by repeated applications of manure, and yet the Roses are not satisfactory, but the leaves thin in texture and pale in colour, as many are under those circumstances, let him slake some lime, spread it half an inch thick on the surface, and lightly point it in as soon as the ground is in suitable condition. The Roses will improve forthwith, and will be better still another year; and so will Vines under similar conditions, and the border dressed in the same way. I found some Rose beds in the condition indicated in 1860, the plants lingering in a mass of humus. They were limed as stated, lighter dressings being given annually for seven years subsequently, and I have no doubt the practice was continued afterwards. I found the Roses sickly and left them vigorous. The beds continue, with many of the original plants, to this day, the son of the former owner having enjoyed them for years. Newly made Vine borders, unless limeless, do not require liming, nor is poor soil generally improved by applications of lime alone. This, at least, is my experience, and what I have recorded is solely with the object of affording guidance to others, and not for opposing the views of a correspondent who is evidently an earnest searcher for truth, and thus entitled to great respect.

PROFESSOR CALDWELL'S articles on manures contain much "food for thought." He lays stress on the value of farmyard manure mainly as conveying humus to the soil. When this manure is alone used in large quantities year after year the accumulation of humus neutralises the effect of other fertilising constituents. Humus is of great value, no doubt, especially in poor soils and dry seasons, as a vehicle, so to speak, for containing real plant food that can be applied in a concentrated form. The bulk of farmyard manure is not plant food, and if coloured liquid is allowed to drain from it its spirit departs—the shell remains, but the kernel is gone. Such a mass to be of any service must be supplemented with nitrogen, phosphorus, and potash mainly. When we consider that 2 lbs. of sulphate of ammonia contains as much nitrogen as does 100 lbs. of farm manure, and that the same bulk only contains the same quantity of phosphates and often no potash, when the drainings escape, it is easy to perceive that much good may be done by using what are known as "artificial," such as bonemeal, kainite, and sulphate of ammonia either apart from or in addition to farm manure. To give sufficient of what plants and crops really need in the form of natural manure a great deal more of this has to be used than is in other respects good for them; in fact, in rich gardens the bulk is often injurious; and in instances innumerable it would be far better and cheaper to purchase a mixture containing a good proportion of ammonia, phosphates, and potash than to

invest in farmyard refuse with the spirit gone. "For those three substances," says the Professor, "any arable soil that is not too sandy is a most trustworthy savings bank." No doubt that is so, and in such soil they may be used with certainty of doing much good without any stable manure. In sandy soil they are of great value with manure to afford humus. This, too, as has been incidentally mentioned, may be afforded by green manuring—a practice that is not sufficiently adopted, especially in light sandy land.

AFTER no inconsiderable experience in working sandy soil in a dry district I have arrived at the conclusion that no method of procedure is worse than to turn it up in the autumn. Digging and adding manure then is positively wasteful. Far better is it to sow Rape, Mustard, Turnips—anything, as soon as possible in the autumn for covering the ground and dig them in in early spring, planting and sowing so far as may be convenient as the work proceeds, adding fertilisers at the same time, to be supplemented as might be required with nitrate of soda when the crops are above ground. In this way the nutriment can be appropriated, applied to porous soil in autumn, and the land dug. Half, and often more than half, of the virtues are washed away by the rains and melting snows of winter. If I had a sandy garden I would allow no man to wheel on manure and dig the ground until spring if he wanted to do the work for nothing. Such land should be dug in early spring before dry weather sets in, and be made firm by treading before sowing or planting, afterwards maintaining a loose surface by the use of the hoe.

It is not much use arguing with Mr. Hiam on the cause of canker in fruit trees. He appears to labour under the delusion that no one but himself and Mr. Harrison Weir have examined specimens with the aid of a microscope. The last-named gentleman is not only a microscopist, but a naturalist and expert draughtsman. It could not be difficult for him to accurately figure the "mites" much enlarged, and entomologists who have given special attention to minute animalculæ would be able to throw much light on the subject; and if it should be determined that insects are really the cause of canker in fruit trees generally, Mr. Weir would deserve the thanks of the fruit-growing community. In the meantime, I can assure Mr. Hiam that methylated spirit, petroleum and Gishurst compound have been applied thoroughly, repeatedly, and systematically until the "American blight" has been totally eradicated, but canker has neither been cured nor prevented. I have been to a district where all the Apple trees are cankered that have been planted a few years. There is no exception as to varieties. Young trees grow in the most satisfactory manner until the roots reach the marl, then the evil shows itself. If insects are the cause it is singular they should come at that particular time. A choice and much-prized collection, belonging to one of the foremost horticulturists in the kingdom and a gentleman of great scientific attainments, is in the condition described. The microscope reveals no mites, though they have been most carefully sought for, and he would only be too pleased if he could find satisfactory evidence of the truth of the insect theory. So far he is quite unable to do so, but there is no possibility of ignoring the presence of canker when the roots of the trees reach the marl. Till then they are free. That is a fact as cogent in its way as any facts that can be adduced in favour of insects eating Mr. Hiam's trees.

AS sure as spring comes round so do inquiries about and estimates of the merits of Peas. I have tried nearly all the varieties in commerce, and shall continue growing new sorts as long as opportunity is afforded. There is much pleasure in small trials, and when seed is saved of the best varieties, no loss; but varieties of proved merit are alone relied on for giving a regular supply of Peas for use, those "on trial" not being taken into account for this purpose. It is to be remembered that varieties do not grow and bear equally well in differing soil. I have practised in a garden where Veitch's Perfection was one of the best to rely on; in another it could not be depended on. With Dr. Hogg, Champion of England (or Huntingdonian), and Ne Plus Ultra, I can insure an unbroken supply of first-rate Peas over a period of six months; so I could with William I., Telephone, Duke of Albany, Veitch's Perfection, and Omega, soil being favourable; or again with American Wonder, Advancer, G. F. Wilson, House's Marrow, and British Queen. Other gardeners can, no doubt, succeed equally well with other varieties. If I were condemned to grow two varieties only they would be Dr. Hogg and Ne Plus Ultra, and with these there would be no break in the supply, and no complaints as to quality.

MR. GIRDLESTONE'S truly admirable articles on single Roses have doubtless been perused with interest by many readers. It is difficult to repress a feeling of envy in respect to the literary accomplishments of the author of them. In that respect knights of the spade must be content to follow at a respectful distance, but they can, and do, impart useful information in an agreeable manner. My contribution on the subject of single Roses shall be confined to one species—the delightful Sweet Briar. This should be grown in bushes for forcing in pots for supplying greenery for flower vases from the present time onwards; also in larger bushes in shrubberies, or as divisional hedges in appropriate positions. I wonder if it is generally known that the simplest, easiest, and cheapest method of raising a number of healthy plants is to sow seed in drills in the open garden in spring. A gardener who has raised a great number finds them more vigorous than plants from cuttings, and that every one is true to character. Some of these I have seen. Possibly this method of increase



may be known to some readers. I do not remember having seen it recorded.

My kindly critic, "A Wisher," &c., who says he is not a farmer, but proves that he is one, and a gardener to boot, appears to fancy I have been overthinking myself. Possibly he may be right. It is a question of fact, however, that English Apples well grown are quite equal to American fruit in value; another fact being that tons are produced in this country that can hardly be sold. It is a question of selection and culture more than anything else, and American growers wonder that we are so kind as to afford them such a market. With a good choice of sorts and better culture plenty of Apples can be grown in this country, and, well marketed, will meet with a ready sale. We are just jogging along on the old lines and permitting our more enterprising competitors to glide past us, that is all. It is a mistake to send small colourless Apples from the north to Covent Garden, because better samples are grown in the south. It answers to send Celery and Turnips from the north to London, because they are better than those grown in the south. That is the simple explanation, and there is a slight difference between those crops and Apples. A northern friend of mine planted an orchard twenty years ago, and it paid him so well that he has recently planted another, but he knows better than to send his fruit to Covent Garden. He could send a thousand tons of Turnips to London if he chose next week, but as he has a thousand sheep he will probably not do so. He can, and does, make farming pay well; so can any competent man with sufficient skill and capital, under a rental of 25s. an acre for land that is capable of producing 5 quarters of Wheat. That was my assertion. The constant clamour for still lower rents, and waiting for more abatements, are ruining British agriculture, waiting for grants meaning neglect in culture and management. I am reminded of the hours of labour on farms. Let me assure "Wisher," &c., I know all about them, have done all he suggests, and could tell him, if needed, how he spent his afternoons. He was in error in implying I had not spent "one year" on a farm. It is "never safe to prophesy unless you know."

"UTILITARIAN" also appears to be a farmer as well as a gardener, so there are three of us. It is clear he knows the evil and the remedy. "Treat the land fairly," he says, "and it will pay good interest on investments." He is right. I am intimately acquainted with much land that has been doing so all through the "depression." I daresay I shall shock some tenderly constituted individuals when I state that in my opinion "depression" in thousands of cases, not in all, is only another name for wasted means and bad farming. By the way, I have one or two items of news for your correspondent. Since the discussion on gentlemen competing with market gardeners two of the former have relinquished the practice, one because he thought it was "not right," the other because he was "no better off" by marketing. There may be more, but those two cases have been made known to me. I have farther been told on good authority that a gentleman has prohibited premiums being paid by young gardeners in part payment of his own gardeners' wages, which he has increased in proportion. I should like to ask for three genuine gardeners' cheers for this considerate and just man. Deeply conscious of my own failings, I rest in the hope that not much more harm than good has been done by the random notes of—A THINKER.

## CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 195.)

### POMPONS FOR LARGE BLOOMS AND BUSHES.

POMPON and Anemone Pompon varieties of Chrysanthemums are particularly adapted for amateurs whose space is often of a limited nature. They can be grown quite dwarf, and their freedom in flowering renders them specially useful for cutting. Opinions differ as to the manner in which the cut flowers should be staged for exhibition—whether in bunches of three blooms, one on each spike, supported 3 or 4 inches above the stand to show the foliage, or in bunches comprising an undefined number of flowers without any disbudding. The former I regard as the more satisfactory, for under what is termed the "big bloom method" the real character of the variety is brought out both in size, form, and colour. The foliage too is much better, which enhances their appearance; and in staging for exhibition a much more uniform stand can be obtained than by irregular-sized bunches. It is much easier also for judges to determine the merits or demerits of a stand when an equal number of blooms are staged in all stands.

Where the plants are grown solely for home decoration, and quantity of flowers is the chief object, the bush method of cultivation is the one to be adopted. To grow the plants for the production of large blooms for exhibition the cuttings should be inserted in single pots towards the end of December, shifting and transferring to frames as required. Do not top the plants, but allow them to grow till the first break occurs, when four or five of the strongest branches should be selected, removing the others, also all shoots as fast as they appear from the main stems. Should a second break occur by the formation of a flower bud early in August, the bud and the shoots must be again taken off, retaining only those branches which were selected at the first break. If the

break occurs during the last days of August rub out the shoots then made and retain the flower bud formed at the end of each branch. These will produce large blooms if all other details are properly carried out. Pots 8 inches in diameter are quite large enough for Pompons, the soil and manner of potting to be the same as for the other sections. House the plants from five to six weeks prior to the time they are required to be in bloom, placing them in a light position as near the glass as possible.

There are two methods of growing Pompons as bush plants—tall and dwarf. Where suitable places are available I prefer plants 4 and 5 feet high, as their long branches of flowers are much handsomer than those on dwarf plants, which are, however, valuable for low houses and special positions and purposes. The middle of January is soon enough to take the cuttings. As soon as the plants are 4 inches high top them, and from this topping several other shoots will spring. Those that are intended to be tall plants should have three of the strongest branches selected, which should be allowed to extend, retaining all side shoots. Do not top them again. Buds will form in September, and all may remain to flower. For producing dwarf plants top when the shoots are 4 inches long, and continue the practice till the first week in July. Secure the growths to prevent breakage by wind, and when the flower buds are formed at the end of September tie out the branches according to requirements and consideration of the position the plants are intended to occupy when in bloom.

### NATURAL-GROWN PLANTS.

In a treatise in which I hope to touch on all matters connected with Chrysanthemum culture I should like to express my opinion on so-called natural-grown plants, not with a view of encouraging their growth, but simply to define what is really a natural-grown plant. The term is, I fancy, applied in many instances in a wrong way. What I consider natural-grown plants are those grown from cuttings, never topped, the shoots not thinned, nor any flower buds taken off. I do not think anyone would care to grow Chrysanthemums in that way if they knew what would be the results. The plants would range in height from 2 to 10 feet according to the varieties and seasons; the blooms borne at the top would be small, many hollow-eyed and almost unrecognisable if compared with good flowers of the same varieties. If any person wishes to grow them in the way indicated, strike the cuttings any time during January, treating the plants in the usual way as to potting and watering, and when they make their first break in May, instead of thinning the shoots to a few as is necessary in other methods of culture, all should be allowed to grow, continuing this "natural" treatment at the next break also.—E. MOLYNEUX.

(To be continued.)

### HOME-GROWN LILY OF THE VALLEY.

THE belief in the superiority of home-grown Lily of the Valley is gaining ground, and wherever the plants are attended to there can be no mistake in the matter. We can have these Lilies of the Valley in flower earlier, in less heat, with absolute certainty, and with foliage and flowers, while with these advantages the spikes are on the average longer than those from the foreign roots. Lily of the Valley has a peculiarity which I presume it has inherited from its wild progenitor of the woods, and that is a decided liking for partial darkness. The flower spikes can be produced in the light; but in order to have foliage with the flowers, partial darkness is necessary. A covering of straw I have found most suitable to gain this end. But even after the straw has been removed it is sometimes necessary to keep the plants away from the light in order to develop the foliage. This is specially the case with clumps which have been lifted from the open and forced for the first time. The curious thing about it is that plants standing, for instance, under the stage of a stove, do not have the foliage drawn either to one side or the other, but it grows just as upright as if in the full sunshine out of doors. This liking of the plant to shade can be taken advantage of, after the flower spikes are removed, by standing the plants along the sides of pathways, where very few other plants would grow. Lifted clumps produce splendid spikes and foliage if placed on the surface of Vine borders under the shade of the Vines, or under Roses or other climbers. At the same time it must not be forgotten that the finest out-of-door flowers are grown in the open sunshine—at least, we find it so.—B.

### HARBINGERS OF SPRING.

THE present winter, if not one of the most severe of late years, is one of the most prolonged, and as a consequence our earliest plants are very much behind their usual time of flowering. The plants which have dared to raise themselves above the soil are at present few as compared with the end of February last year, when Daffodils were springing up abundantly and Winter Aconites and Snowdrops were numerous everywhere. This season even the Winter Aconite (*Eranthis hyemalis*), though in flower, is much later than usual. This is one of the most brilliant and effective of our earliest flowers. It is a plant suited for naturalising in shady spots beneath trees, or fringing a bed of Rhododendrons, for the margin of a



bed of American plants, on sloping banks—anywhere, in fact, will its bright golden flowers produce a striking effect in the dawn of spring. If allowed to remain unmolested for a few years it will form a dense mass, and, like the Snowdrop which bears it company, will thrive in almost any barren spot, where even grass fails to find food sufficient for an existence.

No flower is more charming at this season than *Iris reticulata*, with its fragrant violet and gold flowers; but while it seems to battle with wind and rain, frost and snow, it is not advisable to expose it to all the damaging influences, therefore I would urge that some protection be given it, such as a cold frame. It may be increased by the offsets of the bulbs and also by seeds, and very interesting is it, in adopting the latter method, to mark the variation of its offspring. It seeds somewhat freely, and those who wish to have a stock of this pleasing plant in their gardens should save all the seeds possible. Years ago the late Mr. Atkins of Painswick was a most successful cultivator of this and many other choice plants, and I well remember a patch several feet square and which contained hundreds of bulbs in flower at the time of my visit. The value of such plants when well established cannot be over-estimated. There are varieties of this *Iris* equally lovely, though rarer, while others are not in commerce; among these being *I. reticulata cyanea* and *I. reticulata purpurea* (Krelagei). The former received a certificate of the first class at the meeting of the Royal Horticultural Society on the 9th ult., and to have it in perfection at such a time and in such a season as the present is in itself sufficient recommendation. I cannot overlook the lovely *I. persica* and *I. stylosa*, the former delicate in colour and possessing a fragrance unsurpassed. The colour is blue blotched with purple, yellow, and white; it is of diminutive growth, only a few inches high, and comes in early February; it may be planted in light, though deep rich sandy soil, in small clumps, either in the herbaceous border, the rockery, or in company with the Netted *Iris* in a cold frame. Whether I am justified in including *I. stylosa* within the limits of these notes I

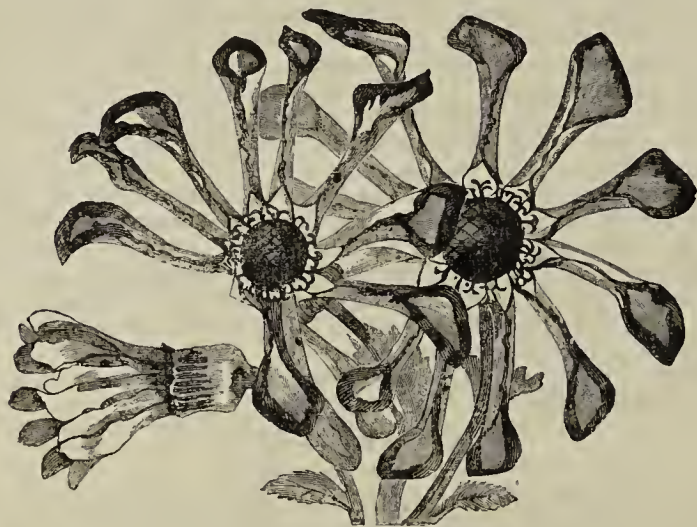


Fig. 41. —A Curious Cineraria.

know not, for we can hardly refer to it as spring flowering, for during my own experience I have had it in flower from November to April. My experience of this lovely and chaste gem is as a winter flower, at least from established clumps. From those which have recently been removed flowers issue at intervals during the period stated, but come when they may the delicate beauty of its flowers is ever welcome. These are of a pleasing and beautiful light blue with yellow blotches, the flowers issuing from a tuft of leaves in an unexpected manner, which would seem to make them doubly welcome.

We have the trio of Giant Snowdrops in *Galanthus Elwesii*, *G. latifolius*, and *G. plicatus*. These all come in early February, and are so widely distinct from the rest as to merit the name of "giant." In the first we have the best of the large-flowered varieties, and which has been in excellent condition for a month past. The foliage is large, the sepals pure white and much winged in its latter stages, while the bells are white margined with green. All the above are as easily cultivated as the common Snowdrop, and should find a home in all gardens. *G. Elwesii* is fully 10 inches high, and it will even exceed this height when well established.

Turning from the Snowdrops, I will next mention the white Hoop Petticoat Narcissus. *N. monophyllus*, the earliest of its relatives, even with 10° of frost last night, has been flowering in the open, protected only by a light temporarily placed on some brickbats to keep it clear of the flowers. It is a flower of glistening whiteness, of pleasing fragrance, and its height is only 4 to 6 inches, thus making it a charming pot plant for the conservatory. It is not impossible to construct an indoor rockery where such plants as these may be at home, having portable lights, which may be at any time removed. Such a structure would be a boon in a hardy plant garden, giving just the assistance so many plants need—i.e., protection from the change of temperature, drenching rains, and winds, and might well embrace all the best among hardy bulbs, and more especially the first of our spring flowers. Such a structure may be erected at comparatively small cost, and, I may add, be unheated. Later on in the season the other members of the Hoop Petticoat Narciss will be coming

on—c.g., *N. bulbocodium*, with varieties *Grealii citrinus*, a large handsome form, and conspicuous, the large golden. Succeeding these we have *N. nanus* and minor, and ere these are past the innumerable host of *Narcissus* and *Daffodils* will be making considerable headway, rendering a garden with a fair complement of them most enjoyable.—J. H. E.

### A CURIOUS CINERARIA.

LAST season we had a very curious seedling *Cineraria* sent to us by a friend. Its ray or outer florets were involute (fig. 41) somewhat as are those of double Dahlias. The colour was peculiar, being bright rosy pink, margined with bright crimson. The friend who sent it promised to save seed, but some accident happened to the plant, and so no seed was forthcoming. Why the outer florets should have curled their margins inwards in this fashion is past explanation, but it may serve as an example of the vagaries often observable in plant life, and for which we know no cause. Some plants are remarkable for their variable-shaped florets—to wit, the *Chrysanthemum*. Everyone expects the *Chrysanthemum* to exhibit this variability, but no one, so far as we know, has yet tried to obtain similar results from other composite flowers. There is a variety of the common Ox-eye Daisy which has tubular or quilled ray florets instead of flat ones, and we see no good reason why such varieties of *Cinerarias* should not some day become popular, just as *Betteridge's Quilled Asters* are now. Our illustration is an example of how Nature, the dear old nurse, gets in the thin edge of the wedge when she wants to effect a change. A florist would laugh at a flower of this sort, and tell you that it was like a windmill, or that there was too much daylight to be seen through the florets, but Nature is the greatest florist after all, if we could but understand her reasons as clearly as we see her variations.—F. W. B.

### ARTIFICIAL FERTILISATION OF ROSES.

A LETTER written by the late H. B. Ellwanger, author of "The Rose," in reply to a private correspondent several years ago, appears in the *American Florist*.

"Your letters duly received. This is my first opportunity of answering. Général Jacqueminot for many reasons would make an excellent female parent. I have this winter fertilised five or six flowers of this variety, and now have seed pods forming, one fertilised by *Solfaterre*, another by *Safrano*. Roses should be fertilised on a sunny day. Before the flower is fully blown which you intend to fertilise the petals should be carefully pulled off and the stamens then cut off with a fine pair of scissors (embroidery scissors). The pistils are ready for fertilisation at the same time when the stamens are ready to drop their pollen, hence the necessity of cutting off the stamens three or four hours before the pollen ripens; if this is not done you are not at all certain whether any cross has been produced or not. Removing the petals hastens the ripening of the pollen, and without this you could not remove the stamens of many of the full sorts. It is my opinion that the male parent has more potency, as a general rule, than the female, and should advise you to make crosses with this in mind. Thus, from *Safrano* as a male parent and Général Jacqueminot as female parent (which cross I have made), I should expect a flower less full than Jacqueminot, but which would give a beautiful bud, perhaps a little fuller than *Safrano*. I have made many crosses, using varieties of *Bourbon*, *Bengal*, *Hybrid Perpetual*, *Noisette*, and *Tea*. I have used *Solfaterre* a good deal as a male parent on account of its colour and vigorous growth, though *Safrano* will give twice the amount of pollen. Besides Général Jacqueminot, you will find *La Reine* and *Baron de Bonstetten* excellent female parents among the *Hybrid Perpetuals*. The seed is best gathered late in autumn before any hard frost, the heaps placed in sand in pots (covered with glass or something else to protect from mice) and planted in January under glass. Most of them will come up in a few weeks, and when up for a few days can be picked out and potted in small pots.

"I presume Bennett makes the *Tea Rose* the female parent because it is the more tender, and the male parent being more potent in its influence he uses for such the *Hybrid Perpetuals*, which are harder than the *Teas*. The most of them, judging merely from their appearance and breeding, will be as hardy as the *Victor Verdier* type, and perhaps more so. You will find that *Niphetos* will make but an indifferent female parent, and will not be a male parent at all, but in the first way will be worth experimenting with. I am very glad to know that you are interesting yourself in this matter. I have several correspondents now in this country who are taking hold of the productions of seedling *Roses* from artificial fecundation, and I am positive that among us we will produce many varieties of great value. I hope you will keep me informed of any progress you make."

### NOTES ON PEAS.

I SEE in the *Journal of Horticulture*, March 4th, page 166, "A Kitchen Gardener" makes a few remarks upon growing Peas. He also says that he has had the satisfaction of surpassing one of my best collections at South Kensington, which I have no doubt is true, but your correspondent, I think, makes a mistake when he says he has not had time to grow for exhibition since beating my collection, and then afterwards admits taking a prize with *Wordsley Wonder* at South Kensington in 1884. The year in which he beat my best collection of Peas must have been before 1884, as in that year, and also in 1885, I had the honour of taking all the first prizes at South Kensington when I exhibited.



"A Kitchen Gardener" says he would undertake to sow any kind of Pea on the 14th March, and exhibit it in prime condition the 14th of July. Perhaps he could do so in his district, but he could not do so here without the help of a glass house or frame. This part of Lincolnshire is perfectly flat for more than ten miles around me on three sides, and we are only four and a half miles from the sea on the other, so that we have no hills to shelter us, and are subject to many cold easterly winds direct from the German Ocean. If I wished to exhibit a collection of second early Peas, such as Telephone, Stratagem, Pride of the Market, Telegraph, Wordsley Wonder, House's Perfect Marrow, and Evolution, the last week in June or the first or second day of July, I should sow the seed about the first week in November, and if the following spring was no more favourable to vegetation than the past seven have been the Peas would not be ready any too soon for exhibiting the last day of June. I am writing from several years' experience, so that "A Kitchen Gardener" may see that it not only takes seven months to grow some Peas to perfection, but nearly eight. I may add that I could sow the seed of the above named Peas on the 14th day of May, and have them ready for exhibition by the 14th day of August, which would be about thirteen weeks.—HENRY MARRIOTT.



#### KITCHEN GARDEN.

**THE WEATHER AND WORK.**—Readers who may have thought our previous notes and recommendations were not in accordance with the unusually severe weather experienced of late ought to take into consideration our advice to carry out the work on "every favourable opportunity;" and much as we should like to give an accurate forecast of the weather at the beginning of each fortnight, we have to be contented with recording our practice and recommending operations which ought to have attention, always, of course, with the understanding that the weather is suitable; and when such is not the case, overdue sowing and planting must be accomplished on the first favourable opportunity. Amateurs with nobody but themselves to grow for, and no one to blame them if their crops are late, may not be troubled in late cold springs, but gardeners, and especially those in small places, know how important it is that their supplies be produced as soon as possible. In instructions, however, which appear in this column it can hardly be expected that the operations should be practised on the same day or week in every part of the country, as while in many parts of the south of England and other favourable localities they might be carried out to the letter, it might probably be weeks before the same work could be done in the north of Scotland; but although our notes are given in season they must be applied according to circumstances. So far March has been the most unfavourable third month of the year we ever experienced, but Carrots, Peas, Beans, Onions, Leeks, &c., sown in February were put into the ground when it was in such good condition that we feel sure the young plants will appear strong and healthy as soon as the weather improves. It is surprising how much frost and cold weather such seeds as those named will pass through without being injured, only provided they have been sown when it was dry and covered with good soil.

**POTATOES.**—From the middle of March to the beginning of April is a very general time for planting the bulk of early Potatoes, and if the weather continues to prevent their being planted see that the young growths now forming on the tubers are not injured or drawn up weakly. Spread out the tubers in a single layer in the full light, but safe from frost, and the shoots will soon become dwarf, stout, and dark green in colour. It is a great advantage to have the tubers furnished with these at planting time, especially in a late spring. Potatoes in frames have been covered closely at night for some time past, as the least frost is fatal to them, and the darkness is not in their favour, especially as little air could be admitted when the wind was cold during the day, but do not pamper them a day longer than is necessary. Where tubers were planted in south borders or at the base of walls in February they will still be safe, but the sun during the day may induce them to grow a little, and where there is any chance of their being near the surface a spadeful of leaf soil or a forkful of manure should be placed over each set.

**CAULIFLOWER.**—Before the last severe frost set in we had planted out a number of autumn-sown plants from the handlights, and they have suffered rather severely, but others still in the frames have been covered at night and they are very robust. As soon as it thaws and the soil is in good order they will be planted out, but seed sown in the open some time ago will be a long time in producing large plants, and to succeed these in frames a quantity of seed should be sown under glass at once. We have just sown a box of each of the following varieties—Voitch's Extra Early, Sutton's King, Eclipse, Webb's Mammoth, and Veitch's Autumn Giant. We shall have at least 200 plants of each, and this will make a good batch for midseason supply.

**MINT.**—If there are any weeds on the surface of the Mint bed pick them off, and then spread manure over the surface to the depth of 2 inches. This treatment will produce Mint in abundance and of the finest quality.

**SAGE.**—Where plants of this were raised from seed last spring, and they are now growing close in the seed rows, lift every one of them and plant them in good soil, allowing 18 inches from row to row and 1 foot from plant to plant.

**SWEET BASIL.**—This is much valued in flavouring, but it is tender and must be raised under glass. Plants are easily raised from seed, and if a pinch of it is sown in a 6-inch pot many plants will soon appear, and as soon as they can be handled they should be transplanted into boxes, where they will soon grow large, and as each shoot is taken off a greater number will come.

**CELERY.**—Early plants which are now quite visible should not be kept in too much heat, as this has a tendency to ruin them. When about half an inch high transfer a number of them to boxes, giving them rich firm soil and keep them from 2 to 3 inches apart; place them in a gentle heat, and gradually harden off until they are planted out in May. Sow more seed, as those raised now are what will come in for the autumn supply. The seed as a rule germinates freely, and a little sown moderately thick in a 6-inch pot will furnish over 100 plants. Celery is very partial to water and should never be allowed to suffer from drought.

**TURNIPS.**—Make a good sowing of Sutton's Early Snowball as soon as the weather will allow. Plants raised after the middle of March are not so liable to run prematurely as those sown earlier, and those we recommend to be sown now will make a useful crop.

**PEAS.**—Autumn-sown Peas are about 3 inches above ground, but they have made little progress lately. They have not suffered much either, as before being staked securely they had a mound of earth thrown up on each side of the row, and this has been a great help to them. Those sown in December were visible a month ago, and they are no further forward now. Others sown in February have not appeared, but the seed is sound still and will remain so, and as mild weather would cause them to grow very fast, a good succession should be sown on the first opportunity. The sowings made now will be giving the supply in July, and as they do not remain long in good condition at that season, sow often and liberally.

**HOTBEDS.**—These are very useful, especially in gardens where there are no glass houses, and as Vegetable Marrows, ridge Cucumbers, &c., will soon have to be raised, collect material for the bed and form it as soon as possible. Leaves, stable manure, and anything that will ferment may be used in its construction. The whole should be mixed together and allowed to lie in a heap for a few days, then turn and let it rest again for a short time, when the bed may be made up. It should be a little larger than the frame which is intended to go on it, and it should be made very firm, as this is the only way of getting it to keep the heat for a very long time. Where hotbeds are plentiful they may be used for raising Lettuce, Cauliflower, Leeks, Onions, &c., just now, and the best way of treating them is to put a layer of good soil inside the frame on the surface of the bed and sow the seed on the top of this.

**BEANS.**—Make a good sowing of Carter's Leviathan, which is an excellent Broad Bean. Syringe those freely which are coming on under glass. Cooling's Ne Plus Ultra, which we sowed ten weeks ago, is now bearing heavily. Sow a large batch of more seed of this variety or Carter's Long Sword, as vegetables are sure to be scarce in April and May. As soon as the young plants get into the rough leaf they will bear hard forcing, and may be pushed on freely.

#### FRUIT FORCING.

**PEACHES AND NECTARINES.**—*Early House.*—The young shoots having been neatly tied in close to the base, and the superfluous growths removed or pinched back to form spurs, the trees should be allowed to make free growth until they are sufficiently advanced for the general tying down to the trellis. Any shoots that show a tendency to become too strong should have the points pinched out before they have time to disturb the balance of the trees. Proceed with thinning the fruits, which must be regulated by the strength of the trees, always bearing in mind that a liberal per-centage must be left for removal after the stoning period. Size and quality being the first consideration, one Peach to every square foot of trellis covered with foliage will be found a heavy crop, and any excess will affect the weight of each fruit, and shorten the lives of the trees by impairing their vigour. When the weather is bright the trees will require syringing with tepid soft water twice a day, but in dull weather the syringing must be omitted or done sufficiently early to allow the trees to become fairly dry before night, but when syringing is not practised a genial condition of the atmosphere should be secured by damping in the morning and again before night, the first with tepid water and the second with liquid manure. Mulch the surface of the borders with short manure, and supply tepid water, afterwards tepid liquid manure. On fine mornings turn off fire heat early, and increase the ventilation with the advancing temperature. Keep a steady night temperature of 60°, with a rise of 10° to 15° by day until after the fruit is stoned, when the ripening may be hastened, if necessary, by a higher temperature.

*Succession Houses.*—Disbud the trees when sufficiently advanced, and pinch for spurs, and cut away all shoots that are not likely to be wanted for the support of the present or the production of the next year's crop of fruit. In disbudding, commence at the extremities of the trees, and work gradually down to the base. Remove small or badly placed fruits as soon as the most promising for the crop can be decided upon. A temperature of 55° to 60° at night, according to the advanced condition of individual houses, will be sufficient, with 10° to 15° rise by day. Syringe twice a day, and water as advised for the early house.



**Late Houses.**—The houses to ripen fruit in August will now be in flower, and will need a day temperature of 50° by artificial means, and 10° to 15° advance from sun heat, with a free circulation of air, the night temperature falling to 45°, with a little night ventilation to prevent the deposition of moisture on the blossoms. Late houses should have a free circulation of air with a view to retarding the flowering, but after the blossoms expand they should be kept safe from frost, and the heat turned on in the morning so as to raise the temperature to 50° and admit of ventilation. See that the inside borders are in a thoroughly moist condition.

**CUCUMBERS.**—Stopping, thinning, and tying the shoots will now require frequent attention. More especially is this the case with the plants that have been fruiting all the winter, which with favourable weather will now be making growth freely. Remove all decayed portions of wood and leaf, encouraging a free growth of young wood, which, as a matter of course, should be tied to the trellis, removing the old wood where practicable to make room for the young. Take off an inch or two depth of soil from the surface of the bed, not unnecessarily disturbing the roots in so doing, and give a dressing of two parts light turfy loam and one of well decomposed short dung, free from worms, and a sprinkling of charcoal. Fresh roots will push freely into the new compost, after which, when circumstances require it, water them copiously with tepid liquid manure in a diluted state. These matters being attended to, the plants will continue in a fruitful state some months longer, being nearly, if not quite equal, in prolificness to plants raised from seed in the early part of January. Maintain a night temperature of 65° to 70°, and 70° to 75° by day from fire heat, allowing an advance of 10° to 15° with sun, and maintain the bottom heat steady at 80°, never less than 70° nor higher than 90°. Add some more soil to the hillocks of young plants as the roots protrude through the soil.

**MELONS.**—Rapid progress has been made during the bright weather of the last few days, hence the stopping, tying, and thinning of the shoots must be attended to almost daily now that the growth is active. Remove all blossoms from the plants swelling their fruits in the early house or pit, and place the supports to them in due time to relieve the plants of the weight. Pieces of deal half an inch thick and 6 or 7 inches square, suspended in a sloping direction by four pieces of wire from the trellis answer well, as do square pieces of small-meshed garden netting fastened to the trellis by four pieces of string. Examine the soil and see that the plants do not suffer from insufficient supplies of water. They will now, especially if the roots are growing in a rather confined space, be in a condition to take a weak application of liquid manure, keeping it away from the stem, which brings on canker, upon the appearance of which quicklime should be rubbed into the affected parts. Ventilate a little on bright mornings when the thermometer registers 75°, increasing it as the temperature advances, keeping the house through the day at 80° to 85°, and closing sufficiently early to allow of a rise to 90°, with plenty of atmospheric moisture, syringing the plants and house twice a day during bright sunshine, closing about 3 P.M. Make additional plantings, pressing the soil around each plant, and should the sun be powerful at the time shade the plants for a couple of hours for a few days, when it must be discontinued. Keep young plants near the glass to prevent their becoming drawn, and make successional sowings as circumstances require, keeping a sharp look out for slugs, searching for them after dark with a lantern, as if allowed to have their own way they in a short time do irreparable mischief.

#### PLANT HOUSES.

**Cattleyas.**—If *C. Trianae*, *C. Mossiae*, *C. intermedia*, *C. gigas*, *C. Mendelii*, and *C. Percivaliana* have been wintered in a night temperature of 60° they will now be starting, and should be top-dressed or repotted, as the case may be. Those that require repotting are best done before new roots have extended to any length, for they are almost certain to be injured in the operation. We prefer repotting these plants just as the roots show signs of starting from the base of the pseudo-bulbs, and therefore they should be pushed on from time to time as they are ready. Those repotted last year will only need the surface peat and as much of the sphagnum moss as possible removed without breaking or otherwise injuring the roots. Supply fibry peat and living sphagnum. All the top-dressing should be completed before those that require potting are commenced. Cattleyas are amongst the most difficult of Orchids to repot without injury to their roots more or less, for the roots cling tenaciously to the sides of the pot. Pans are the best for these plants, and plenty of various sizes should be in the house in readiness, also plenty of clean crocks in various sizes, charcoal in lumps, peat fibre, and sphagnum. These are worked in separately as the work of potting proceeds. It is impossible to turn these plants out of the pans in which they are growing without destroying a large quantity of their roots; therefore, the pans should be broken. The base of the old pan should be removed and as much of the remainder of the pan as possible, all the portions clinging to the roots being left. The old compost, if very much decomposed, must be removed; but, if in good condition, only those portions that can be taken without disturbing the roots. When all the old compost is removed potting must be carefully performed or the plants will decline in health. A pot, according to the size of the pan, should be inverted in the centre, and then the plant placed into position and crocks and charcoal carefully laid amongst the roots until the pan has been more than half filled. Place a little moss over them, and fill the remaining space amongst the roots with peat and moss, using about one-third of the latter. As the work proceeds lay large pieces of charcoal amongst the peat and moss, so that the new roots, when they are made, will have something near the surface to cling to. The moss used must be so placed—not too far below the surface

—that it can be picked out annually, for it decomposes much more quickly than peat fibre. When these plants are potted a good shift should be given them, so that they will stand for three years, or as long as the fibre will remain in good condition. It is important that the peat fibre be good, for these plants do not long remain healthy with decayed compost about their roots. They must be watered with great care for some time yet, especially those newly potted, giving no more water than will keep the material about their roots moist and the pseudo-bulbs from shrivelling. Syringing amongst the pots may be freely practised, and a little more moisture may now be maintained in the atmosphere of the house. Plants growing on rafts may be mossed and top-dressed, and the same applies to those growing in baskets; if larger are required they may be placed in them without attempting to disturb the old basket.

**Oncidiums.**—All that are growing with the Cattleyas may be top-dressed, except those that it is necessary to place into larger pots, pans, or baskets. These plants are less difficult to pot than Cattleyas, for their roots are not so easily destroyed. Many *Oncidiums* will flourish in the same basket for years provided they are top-dressed with moss and peat annually. When these plants are placed in baskets plenty of charcoal should be given them, and their roots will soon become attached to it; the compost used for them should be near the surface, so that it can be removed when decomposed. It is sometimes difficult to pick out the whole, but it can generally be washed out, and when this is done the baskets must be allowed to drain thoroughly before the new compost is applied. Those in pots or pans that need a larger size should have them most liberally drained, for these plants root most freely upon the surface. The majority do well in peat fibre and a little charcoal intermixed, with a good layer of moss on the surface. When repotting any plants decomposed soil should be removed and the roots washed clean in tepid water. If the material used for potting is good, and too large shifts are not given, they will be in sweet condition in the space of two years, when they should require larger pots or pans. More water may now be given to the roots of those starting, while those repotted must be watered very carefully until they are growing and rooting freely. If these or any Orchids are overwatered after they have been repotted they are certain to sniffer, but with care they will start freely and vigorously into growth. For the present make no attempt to grow the sphagnum on the surface of these plants; they can be surfaced after they have commenced growing freely, and then the moss can be encouraged.

**Thunias.**—These have been resting in some moderately cool place, and may now be introduced into a temperature of 60°. If given a good soaking of water and syringed daily they will soon commence growing, when they should be shaken out of their pots and repotted in fresh ones. These Orchids are not very particular about soil, and will flourish in almost any compost. They do wonderfully well in fibry loam, one-seventh of cow manure passed through a fine sieve, sand and a little charcoal, or they may be grown in equal portions of peat and loam. Water carefully until they are growing and rooting freely, then liberal supplies may be given.

## THE BEE-KEEPER.

### EXTRACTING HONEY.

ADVANCED bee-keepers are always ready to expatiate upon the merits of the extracting system, and to denounce the old-fashioned cottage skep, not only because of its inhumanity, nor yet because the weight of honey derived from stocks so managed is less, but because they say honey taken from combs which have at one time contained, or at the time of taking honey do contain, some pollen, brood, or other contaminating substance which is extraneous to pure honey, takes away its rich flavour and the sweetness appertaining to honey taken from white comb in which pollen has never been stored nor brood raised. It is, of course, admitted that honey taken from such combs is inferior to that taken from virgin comb. The old system is, then, essentially at fault. Every new one must directly aim at getting pure honey and untainted; but do these advocates of extracting extract from pure comb? Do they not rather choose old tough combs in order that they may the better withstand the action of the apparatus which is to throw out the honey? Are not these combs used for extracting from often partially filled with brood in all stages of existence and with bee bread? Is it possible, can anyone imagine, to extract the honey only without throwing forth some brood and pollen? Where, then, is the superiority of this honey over that taken on the old plan with less trouble, less expense, and a minimum of risk?

In order, however, that the extractor may be of the



greatest possible use to the bee-keeper the honey must not be left in the comb until sealed or the loss of time would be great, so these apiarians who advocate the taking of pure honey only extract it in a partially unripe state, when it is of very poor quality and quite unfit for sale. Whether this is recognised here or not it is certainly well known in America, and the evils of this method of increasing the honey flow are acknowledged by great authorities, as may be seen from the President's address delivered to the North American Bee-keepers' Society, which met on the 8th of December last. The following passage will give some idea of the drift of the essay:—"When is honey ripe? With the system of extracting when the honey is unsealed there is no uncapping, and bees have plenty of store room, but the quality is inferior; and right here a friend would step in with his ripening can. But we have made no light mistake, for in the past our honey has been handled too much as if it could lose nothing by having it come in contact with the air. What imparts that peculiar aroma to honey and gives each kind of honey a distinct flavour? Is it not largely a volatile oil? . . . and in evaporating and otherwise coming in contact with the air we lose this."

Possibly the States apiarians can form quite as good an idea of the extractor as any English apiarian; certainly more honey passes through their hands each season. If run honey thrown from the combs before ripening is so inferior in quality, losing flavour and its rich aroma, the producer is damaging the market; if, again, the honey is allowed to remain in the cells until they are all completely sealed the extractor may be used with advantage to save the combs, but all the other advantages appertaining to its use are gone. I had always been under the impression that the less honey was exposed to the action of the air the better the quality, and yet if the extractor and ripener are brought into use a process of evaporation must take place which is essentially damaging to the honey, and in addition giving increased trouble to the bee-keeper. To quote again from the same source:—"Many find that to extract honey when one-third capped answers well, the honey to be put into deep tanks holding about 600 lbs. each, and left for a week. This causes the light thin honey to rise to the top; generally it is not 10 per cent." Now, possibly the great bee farmers of America may profit by this spurious ripening of honey, but it is very questionable, and, in fact, the idea seems already to be taking root that such a clumsy method is practically worthless.

The objection to leaving the combs until completely capped is the loss of time entailed, and this in the honey flow is great, but better far to get a less quantity of extra quality than a superabundance of sugary syrup lacking the flavour and good keeping properties of honey, resembling it only in that if it had had time to do so it would have become the real genuine product. Would it not be better to sacrifice the extra quantity? Is it feasible to spend time in extracting every few days, and money in buying extractors, when the result is inferior produce if the thin honey is not separated from the thick and ripe, and if such a separation is made then loss of flavour and loss of weight, with the result that the finest quality only brings the same price as the honey taken from the combs on the old-fashioned plan—that the poorer quality is, when the market is glutted, unsaleable, and at any time only realises a very low price, and from this price deduction must be made to pay for the apparatus and the time and trouble expended upon its use? For those who use the extractor to blame the cottager for the inferior quality of his honey is presumption; to them, perhaps, the old adage will occur. Better far take honey from old combs containing brood and pollen rather than take it unripe and thin and watery from combs free from contamination. Honey of very fine quality can indeed be taken from old combs if only care is exercised not to indiscriminately break up the combs and all their contents together. If all the better parts of the comb are run into one pan, and the inferior and pollen-contaminated portion into another, the result is that the former

will be of a really fine quality, far superior to the sugar-and-water liquid sold to those who are yet unable to detect when honey has been treated in a manner tending to deprive it of its exquisite flavour, and to reduce it to a flavourless compound which is totally different to the honest production of the bee gathered in the natural way, stored in due time, sealed when ripe, and extracted in a proper manner, taking due care to exclude all extraneous matter, and to expose it to the action of the air for as short a time as possible. By all means let us increase the yield of our stocks if we can, but not at the expense of quality. If we cannot get good quality honey in greater quantity we must be content to wait, and may feel sure that if we desire to damage bee-keepers nothing more surely will effect the purpose than teaching them to palm off upon the public in the name of honey a spurious liquid which in due time would have become honey, but which the impetuous haste of the bee-keeper has turned into a tasteless syrup.—FELIX.

#### TRADE CATALOGUES RECEIVED.

Webb & Son, Wordsley, Stourbridge.—*Catalogue of Special Manures.*



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Vines not Starting Freely (W. W.).**—This might be due to over-cropping last year and imperfectly ripened wood, or perhaps the atmosphere of the house has not been kept sufficiently moist. Damp the paths, stages, or border, and on fine bright mornings syringe the rods with soft tepid water. A little weak liquid manure may be sprinkled about on the floors and paths, the ammonia arising from which will assist the starting.

**Insects in Soil Injuring Ferns (G. C.).**—The best plan will be to repot the Ferns, carefully removing as much of the old peat as possible, and employ fresh, shading the plants for a week or two until they recover from the potting. Remove the old soil, and exercise as much care as possible to prevent any being mixed with the fresh material. Take some distance away or burn it, and on no account employ it again for the plants.

**Bones and Bonemeal (F. G.).**—The sample of "turnings from bone buttons" would be excellent for mixing with soil for potting most kinds of plants. Being so finely divided its virtues will be the more readily available, and at the same time will be yielded for a considerable period. The crushed bones would be of service for mixing with the soil for Vines, also fruit trees and Roses in pots or borders, also for plants generally that have to remain in pots for a considerable time. It would improve the mechanical condition of soil, and act as a steady fertiliser over a long period. Its dark colour is quite immaterial for the purpose in question. A mixture of the two kinds would be good for Chrysanthemums.

**Kennedya and Lasiandra (Borderer.).**—We do not know a *Kennedya* bearing the name exactly as you give it, but it is probably a misrendering of *K. inophylla floribunda*, which you will find in the catalogues of the leading nurserymen. *Lasiandra macrantha* is much more straggling and loose in growth than the variety *floribunda*, which should be grown for pots where bushy plants are required. The other is more fitted for training against a wall or pillar, but by shortening the stems and pinching the growths early in the season the plants can be rendered more compact. If, however, you wish to cultivate plants in pots procure the variety named, and you will experience little difficulty with it.

**Raising Seedlings (Hackneyarian.).**—A box 2 feet deep will be suitable for raising Stocks and similar plants in. As manure cannot be had, 1 foot in depth of any kind of rubbish may be put in, spreading on this about 8 inches of free soil, fertile garden soil, with leaf mould and sand, answering well, the upper 2 inches to be sifted. The seed may be sown in April the seed kept moist, and the box covered with glass. The Sweet Peas and Mignonette seed will germinate in due time if the soil is kept moist.



Currant trees may still be planted if the roots are kept moist when out of the ground, but autumn is the best time. The price of trees depends on their size. Cocoa-nut fibre refuse can be had in small quantities from nurserymen and florists, in large quantities from advertisers of the material.

**The Date Plum (W. J., Croydon).**—*Diospyros Lotos* is the European Lote or Date Plum, and grows wild in countries bordering the Mediterranean. It produces fruit of the size of a Cherry, of a yellow colour and a sweet astringent taste, and it has been recommended as a cure for diarrhoea. *D. decandra*, a native of Cochin China, bears a large berry, of a yellow colour when ripe, with an austere and somewhat sweet taste and disagreeable smell; but it is eaten and sold in the markets in the northern provinces of Cochin China. The wood, when of sufficient age, is of a fine, compact, regular grain, heavy, very white, veined with black, and sometimes black at the heart, and is highly esteemed for cabinet-work. The fruit of *D. psidioides*, a native of Peru, is an inch in diameter, with an ungrateful smell and an insipid taste. *D. Kaki*, a native of Japan, produces a fruit like a yellow Plum, which the Japanese eat to such an extent as sometimes to cause an attack of diarrhoea. It is sometimes imported to this country from China as a dried sweetmeat. It is preserved in the same manner as the Fig.

**Vines and Peaches (F. J.).**—We do not syringe our Vines after the leaves commence unfolding, except giving them a thorough washing, not a mere sprinkling through the syringe once a month or so to keep the leaves quite clean. A genial atmosphere is maintained by syringing every part of the house except the Vines early in the afternoons of bright days when the house is closed, damping the paths in the morning according to the weather. Some growers find it advantageous to syringe Vines regularly in districts where red spider is prevalent. Syringing or non-syringing is very much a question of management in other respects, and no inflexible rule can be stated on the subject. It is a question on which individuals must exercise their judgment. The laterals should be thinned gradually, so that the best are eventually retained, about 18 inches apart so as to afford space for full development of the leaves; but these permanent laterals must be safely secured before all the others are removed, or an accidental breakage of one of the former would leave a blank not easy to be filled. As the Peach trees are growing you must keep them in the house for some time, or until the weather is so mild that they can be placed outside without receiving injury. If you put them out now you will kill them. They must be prepared and hardened as if they were bedding plants, then planted out as you propose. Cut out the branches that have produced no growths. We are unable to obtain the address you require.

**Cypripedium spectabile (T., Surrey).**—You have not been misinformed as to the easy culture of this hardy Orchid, nor has its beauty been overestimated, as it possesses merits which should make it a general favourite; and when its perfect hardiness is taken into consideration with its present inexpensiveness there is no reason why everyone should not possess one of the very best perennial Orchids. The plant is easily distinguished from all others. It grows from 1 to 2 feet high, the stems being more or less covered with leaves of a light green colour, and conspicuously veined. The flowers, which are borne singly, or from two to four on the stems, are very showy; the sepals and petals are spreading, ovate in form, the petals being much the widest, pure white in colour; the lip is very much inflated, of a rich rose colour, sometimes nearly crimson. The soil best suited for it is good peat and coarse sand, with some sphagnum chopped up fine and mixed with the peat. If grown in pots several should be placed in a large pot and kept plunged in moss or fibre in a shady place. When well grown it is a most beautiful plant for exhibition purposes, and it can be readily forced. It can be equally well grown if planted outside in peat and sand in a shady place or on the rockery, where it is quite at home with many of the Primulas, Dodecatheons, and Ferns. It forms a lovely companion for Ferns. The stems springing up from among the light green fronds of the Lady Fern are exceedingly attractive, and the plant thoroughly enjoys such a home. We have had it planted in old stumps, when it seemed to be peculiarly happy.

**Constructing Peach House (J. L.).**—You do not state whether the house is to be erected against a wall already up, or whether a wall will have to be built, as we presume you intend to have a lean-to. This we should not have if a wall has to be built for its support. Granted you require the house against an existing wall, and that it has a southern aspect, we should have a house 12 feet wide, having 3 feet height of front lights, and these not more than a foot clear of the ground level, the front wall being built pier fashion, with 2 feet openings, arched over to allow the roots from the inside border to pass into the outside one. The depth of border will need to be 3 feet, so that you must have the front wall accordingly high with proper footings. The height of the back wall will need to be 11 feet 6 inches, and this will give you a proper slope for the roof, the front lights being 3 feet, and with the brickwork 4 feet above ground. The height of the back wall must be calculated from the ground level. To accommodate two trees in front the house must not be less than 24 feet long, better 30 feet, the front trees being trained to a trellis, fixed about 16 inches from the glass, and the front part curved so as to take off the angle formed by the eaves. The front trellis must only be taken up about two-thirds the house, calculating from the bottom of the rafter, so that the upper part of the house will remain clear and admit light to the trees at the back. It would be an advantage were the house a three-quarter span so as to keep down the back wall to a height of about 9 feet 6 inches, the front trellis in that case being taken up to the ridge. You will need lights not less than 2 feet wide at the top of the house its entire length, and the whole of the front lights should be made to open by crank and lever movement. If there is no wall we should advise a span-roof house with the ends north and south, and 18 feet wide so as to take trees on both sides of the house, having it 30 feet long. It will be more costly, but not much more so than a lean-to.

**Libonia floribunda Culture (R. S. T.).**—A successful cultivator of this plant treats it as follows—"Small bushy plants laden with their pretty orange scarlet tubular flowers are valuable for dinner-table and room decoration, producing a very charming effect. It is also suitable for arranging amongst other plants in the conservatory. Unless large specimens are

required small plants are the most useful for general decorative purposes. After flowering they should be pruned and placed in heat. The young shoots when an inch long make good cuttings, and should be inserted in light sandy loam, the pots being placed in a moist gentle bottom heat. When the cuttings have rooted they should be transferred singly into 2½-inch pots, employing a compost of two parts turfy loam, one part leaf soil, and one part well-decomposed manure, with plenty of sand to render the soil porous. After potting the plants must be kept in a close house and shaded for a few days; afterwards assign them positions near the glass, with full exposure to the sun, in a temperature ranging from 65° to 75°. Syringe them twice on fine days, and frequently pinch the points out of the shoots to induce the plants to become dwarf and bushy. As they increase in size they must be potted, employing pots an inch larger each time. About the end of June they may be gradually hardened off and placed in cool pits or frames, which must be ventilated freely on bright days, and supply the plants with plenty of water; liquid manure may also be given two or three times a week with beneficial results. About October the plants must be taken in the greenhouse, where they thrive in a temperature from 45° to 55°. By the end of November they will commence flowering, and will remain in great beauty till March."

**Grafting Wax (G. H.).**—There are various preparations used in grafting fruit trees. Some of the mastics require to be used warm, but the following may be prepared and used without being heated:—Yellow wax, 1 lb.; turpentine, 1 lb.; Burgundy pitch, 8 ozs.; mutton suet, 4 ozs. Melt all together and mix thoroughly, and leave them to cool. Form the mass into small balls, as it will not stick to the fingers, and use them when opportunity offers. Liquid grafting wax is a very useful application, and is, perhaps, the most convenient for the purpose of all the mastics used for covering wounds and grafting. It is of the consistency of varnish, and is applied very thinly with a brush. Care must be taken not to lay it on thickly, for the surface hardens so rapidly the alcohol is prevented from evaporating. Rosin, 1 lb.; beef tallow, 1 oz.; spirits of turpentine, one tablespoonful; alcohol (95 per cent.), 6 ozs. Melt the rosin over a slow fire; when melted take it off and add the beef tallow, stirring it constantly; let it cool down somewhat, mix the spirits of turpentine little by little with it, and at last the alcohol in the same way. Should the alcohol be added while the mass is too hot much will be lost by rapid evaporation; if, on the contrary, it is too cool, it will form a viscid lump, and must be slightly heated again. Stirring briskly is indispensable to mix the ingredients thoroughly. In well-corked bottles it keeps for years. If in course of time it becomes too thick, the addition of some alcohol will make it liquid again. For this purpose it must always be warmed. It is a good plan to put the bottle containing it in boiling or hot water to accomplish this. They are generally used in preference to clay in nurseries where grafting is extensively carried on, because more expeditious; but where only a few trees are grafted well-prepared clay answers every purpose.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (H. T. F.).—Your plant is *Dendrobium crassinode*, and a rather pretty variety.

#### COVENT GARDEN MARKET.—MARCH 17TH.

No alteration from last week. Cucumber trade very dull indeed.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. ½ sieve	2	0 to 3	6	Oranges .. .. 100 4	0 to 6 0
" Canadian .. barrel	10	0	12 6	Peaches .. .. per doz.	0 0 0 0
" Nova Scotia ..	10	0	12 6	Pears, kitchen .. dozen	1 0 1 6
Cobs, Kent .. per 100 lbs.	27	6	30 0	" dessert .. dozen	0 0 0 0
Figs .. .. dozen	0	0	0 0	Pine Apples English .. lb.	1 0 1 6
Grapes .. .. lb.	5	0	8 0	Plums .. .. ½ sieve	0 0 0 0
Lemons .. .. case	8	0	10 0	St. Michael Pines .. each	2 0 6 0
Melon .. .. each	0	0	0 0	Strawberries .. per oz.	0 9 0 0

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. .. dozen	1	0 to 1	6	Lettuce .. .. dozen	1 0 to 1 6
Asparagus .. .. bundle	2	0	8 0	Mushrooms .. .. punnet	0 6 1 0
Beans, Kidney .. lb.	2	6	3 0	Mustard and Cress punnet	0 0 0 0
Beet, Red .. .. dozen	1	0	2 0	Onions .. .. bunch	0 3 0 0
Broccoli .. .. bundle	0	9	1 0	Parsley .. dozen bunches	2 0 3 0
Brussels Sprouts .. ½ sieve	6	0	8 0	Parsnips .. .. dozen	1 0 2 0
Cabbage .. .. dozen	2	6	3 0	Potatoes .. .. cwt.	4 0 5 0
Capsicums .. .. 100	1	6	2 0	" Kidney .. cwt.	4 0 5 0
Carrots .. .. bunch	0	3	0 4	Rhubarb .. .. bundle	0 2 0 4
Cauliflowers .. .. dozen	2	0	3 0	Salsify .. .. bundle	1 0 0 0
Celery .. .. bundle	1	6	2 0	Scorzonera .. .. bundle	1 6 0 0
Coleworts .. doz. bunches	2	0	4 0	Seakale .. .. per basket	2 0 3 0
Cucumbers .. .. each	0	3	0 5	Shallots .. .. lb.	0 3 0 0
Endive .. .. dozen	1	0	2 0	Spinach .. .. bushel	6 0 8 6
Herbs .. .. bunch	0	2	0 0	Tomatoes .. .. lb.	0 9 1 0
Leeks .. .. bunch	0	3	0 4	Turnips .. .. bunch	0 4 0 6

##### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi .. dozen	9	0 to 18	0	Ficus elastica .. each	1 6 to 7 0
Arbor vitæ (golden) dozen	0	0	0 0	Ferns, in variety .. dozen	4 0 18 0
" (common) .. dozen	6	0	12 0	Foliage Plants, var. each	2 0 10 0
Arum Lilies .. .. dozen	9	0	18 0	Genistas .. .. dozen	10 0 12 0
Azaleas .. .. dozen	24	0	42 0	Hyacinths .. .. dozen	6 0 9 0
Begonias .. .. dozen	0	0	0 0	Lilies of the Valley, in clumps or pots, per doz.	15 0 30 0
Bouvardia .. .. dozen	12	0	18 0	Marguerite Daisy .. dozen	8 0 12 0
Cineraria .. .. dozen	10	0	12 0	Myrtles .. .. dozen	6 0 12 0
Cyclamen .. .. dozen	12	0	24 0	Palms, in var. .. each	2 6 21 0
Cyperus .. .. dozen	4	0	12 0	Pelargoniums, scarlet, doz.	6 0 9 0
Dracena terminalis, dozen	30	0	60 0	Primulas, single, dozen	4 0 6 0
" viridis .. .. dozen	12	0	24 0	Solanum .. .. dozen	8 0 12 0
Erica, various .. .. dozen	12	0	24 0	Spiraea .. .. dozen	12 0 18 0
Euonymus, in var. dozen	6	0	18 0	Tulips .. .. 12 pots	6 0 9 0
Evergreens, in var. dozen	6	0	24 0		



## CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. 12 bunches	0 0	to 0 0	Lilium longiflorum, 12 blms.	0 0	to 0 0
Acacia (Mimosa), Fr., per bunch	1 0	1 6	Lily of the Valley, 12 sprays	0 9	1 6
Arum Lilies .. 12 blooms	4 0	6 0	Marguerites .. 12 bunches	6 0	8 0
Azalea .. 12 sprays	0 6	1 0	Mignonette .. 12 bunches	3 0	6 0
Bouvardias .. per bunch	0 6	1 0	Pelargoniums, per 12 trusses	1 0	1 6
Camellias .. 12 blooms	2 0	5 0	"    scarlet, 12 trusses	0 9	1 0
Carnations .. 12 blooms	1 0	3 0	Poinsettia .. 12 b'ooms	0 0	0 0
Chrysanthemums 12 blooms	2 0	4 0	Roses (indoor), per dozen	3 0	9 0
"    12 bunches	9 0	18 0	"    Tea .. .. dozen	2 0	4 6
Cyclamen .. doz. blooms	0 4	0 9	"    red, French .. dozen	2 0	4 0
Epiphyllum .. doz. blooms	0 6	0 9	Spiraea .. .. 12 sprays	1 0	0 0
Encharis .. per dozen	4 0	8 0	Tropaeolum .. 12 bunches	2 0	3 0
Gardenias .. 12 blooms	6 0	18 0	Tuberose .. 12 blooms	3 0	0 0
Hellebore .. doz. blooms	0 0	0 0	Tulips .. dozen blooms	0 9	1 0
Hyacinths, Roman, 12 sprays	1 0	1 6	Violets .. .. 12 bunches	1 0	1 6
Lapageria, white, 12 blooms	0 0	0 0	"    Czar, Fr., .. bunch	1 6	2 0
Lapageria, red .. 12 blooms	1 0	2 0	"    Parme, French, per bunch	4 0	6 0



## SEED TIME.

BARLEY, Oats, Clover, Rye Grass, the mixed seeds of alternate husbandry, Spring Tares, White Mustard, Cattle Cabbage, and Thousand-headed Kale, Sainfoin, Lucerne, Mangolds, Swedes, Parsnips, Carrots, and White Turnips are among the principal crops to be sown in the course of the next few weeks. We have given particular attention to procure good seed of whatever sorts had to be purchased, for we make it our especial object to procure seed both clean and fine. For example, we required a rather large quantity of Black Tartarian Oats, but we had to reject more than one sample foul with the seeds of weeds and other corn; we also declined buying some Fen Oats pressed upon our notice as really excellent seed, but to our mind the large quantity of small tail corn in the sample gave promise of anything but an excellent crop. Upon pointing this blemish out to the vendor he was loud in his assurances as to the vitality of the seed, and we had some difficulty in making him understand that it was not the vitality of the seed, but the vigour of its growth after germination that we considered questionable. Eventually we purchased a fine clean sample of short, stout, even-sized grain at the high price of 26s. per quarter, and judging from experience the extra outlay of 6s. per quarter should prove a profitable investment. To obtain the best possible crops the sowing in good time of first-class seed is the crown and finish of our work at seed time, and we cannot too strongly deprecate the erroneous practice of sowing inferior seed.

A dry February and so much hard frost must confer the advantage of a good seed bed for spring corn generally. Early sowing is doubtless desirable, but it is well to wait till the soil is really dry enough for the free action of drills and harrows. Barley sowing should then come first, and we only wish our readers had Excelsior drills to apply artificial manure to the soil at the same time.

Oat sowing follows Barley closely, and no corn answers better for a dressing of manure, which ought also to be given to Clover and mixed seeds. Foul land will probably be in condition to be cleaned early, and if poverty-stricken as well we cannot do better than sow it with White Mustard—20 lbs. of seed per acre, giving a dressing of 1 cwt. of nitrate of soda per acre as soon as it is well above the surface; and when the Mustard has shed its blossom and the seed pods are fully grown but still green, at once plough in the Mustard, and sow another crop of it if the season proves favourable. We thus get clean soil admirably stored with fertility in the most economical manner.

Of green crops for the flock Spring Tares follow Swedes, Cabbage, and Rye, and well will it be if we can spare enough land for successional sowings till June. A large piece of Rye Grass or Rye Grass and Clovers sown with a corn crop is a wise provision for next spring, and we may well pass in review all such useful crops as Sainfoin, Lucerne, and Cabbage, the last named crop being alike valuable for cows and sheep. Let it not be forgotten, too, how exceedingly valuable Green Maize is for cows and store cattle in summer. This crop is not sown till the end of May, as the young growth will not bear exposure to late frosts, but it grows with such singular rapidity and vigour as to exceed by many tons per acre the bulk of any other forage crop.

Upon the home farm Turnips and Mangold should not be grown altogether to the exclusion of Carrots, for although a somewhat expensive crop there can be no doubt of its value for dairy cows as well as for horses. Sliced Carrots and bran with meadow hay is the diet of our cows for the last three months of the year, and we have never found this sweet wholesome root affect the flavour of the milk hurtfully.

## WORK ON THE HOME FARM.

Weather of such extraordinary severity in March has rendered extra care necessary among the lambs. We were asked for lamb cloths to put on the hurdles enclosing a fold for some of the ewes and forward lambs on Turnips in an exposed field, but we were able to afford much better shelter by having hurdles thatched with straw put up round the fold, and at the same time to avoid an outlay of £4 or £5. We now fully realise the beneficial effect of a liberal dietary for the flock, only one weakly lamb having succumbed to the trying influence of snow and frost. We hear with regret of losses of both sheep and lambs from insufficient food and exposure to cold, and we repeat that sheep do suffer from exposure to cold and wet, notwithstanding their thick wool covering. When will farmers see that it is to their interest to provide ample means of shelter and plenty of good food for all the animals of the farm? Do not attempt undertakings beyond the scope of your means. Fifty sheep well fed and well sheltered will always prove more profitable than a hundred turned out on bare pasture to "take their chance."

Corn-drilling and other work on the land has been retarded by frost and we have turned to Wheat-threshing at last, although the advance in price is so slight as to make very little difference to the final result. It was clear, however, that when the full pressure of spring work set in corn-threshing would prove such a hindrance that it was better to get it done beforehand. The carting of faggots, timber, stones, and gravel, has also been pushed on as fast as possible, as such work should soon be finished now. Hedgerow timber grubbed during winter has been taken off the fields, and all grass land must now be cleared of wood of all kinds, fallen branches and twigs picked up under trees, and stone-picking also done, preparatory to bush and chain-harrowing and rolling. Growth on poor pastures will be very late this season, poverty of condition always proving a hindrance to free growth, but fertile pastures well dressed with manure spring into free strong growth with the first change to mild weather.

Fences and gates have all been examined and all repairs done. We have many fences requiring a coating of tar, but this work is reserved till summer. We hope, then, to do all that we can to have all bare or weather-worn wood and ironwork of fences, gates, and farm buildings, carefully dressed with hot tar, both for appearance and protection of the property entrusted to our care. It is undoubtedly a weak point upon farms generally, this negligence of such work which meets the eye on every hand, and yet nothing can possibly justify it, for the outlay cannot be material when tar can be had for 4d. a gallon.

MESSRS. F. & A. DICKSON & SONS' "BOOK OF THE FARM."—This neat annual, besides containing an article on laying down land to pasture, publishes an abstract of Professor Carruthers' report relative to "Cheap Seeds." The Professor expresses his belief "that the great progress made in supplying good and pure seeds extends to the larger houses throughout the country, but from some experience fears 'that the smaller dealers in market towns distribute worthless materials among farmers.'" He gives examples in support of his view, and remarks that in one case Meadow Fescue bought by a member of the Society in Kent, from a merchant in a neighbouring town, contained 76 per cent. Rye Grass, 4 per cent. Holcus, and 4 per cent. of other foreign species. He says, 'So long as farmers seek a low-priced article and accept and sow worthless seeds without complaint, they will be supplied.'

## FROZEN MEAT.

As affecting the interests of British farmers in one way and the great body of consumers of farm produce in another, the importance of the trade in frozen meat cannot be overlooked. Not in the cropping of the



lands alone, but in other matters, there is perhaps a tendency to "go into extremes." As soon as any particular method of routine finds favour there is something like a rush towards its adoption, the result of which is markets become overstocked and "depression of trade" is the natural concomitant. So long as the production of grain was profitable so did the acreage increase, not in this country, which is a mere speck on the food-producing surface of the world, but in other lands where vast areas awaited cultivation; hence the extraordinary supply of Wheat and the correspondingly low value of the produce. This low value, which in many cases was certainly not remunerative, suggested the advisability of laying down land to grass with the twofold object of saving labour and growing meat. In certain districts this change in the method of procedure was doubtlessly sound and, carried out with judgment, profitable. But prudence is not always the accompaniment of change. It is one thing to lay down land to pasture in a stock-rearing and dairy farming district; another thing to relinquish the cultivation of grain and root crops all over the country. Is there not just a danger of the change suggested being carried out too far and too generally?

It does not follow that because Wheat-growing has not been profitable during the past two or three years that it will for ever remain unremunerative; neither does it follow that fortunes will be made by the rearing and fattening of stock in this country. It is perhaps questionable if all, or even half, of the farmers of Great Britain are aware that the acreage of Wheat in the United States of America has decreased in one year to the extent of 5,000,000 acres; and they have possibly no adequate idea of the increasing magnitude in the importation of meat preserved by the agency of frost from the Antipodes. It is proved beyond all question that meat can be brought from New Zealand and other colonies on the other side of the globe and distributed to consumers in this country as fresh and as sweet as from our native pastures. This statement will not be accepted by the majority of people, and it is just because of this innate incredulity of the British race and the prejudice that exists in favour of home products that danger lurks of one being left behind in the competition of the world.

Having recently inspected the refrigerating stores of Messrs. Nelson Brothers, shippers, a brief reference to their extent and the process of storing thousands of frozen sheep and huge piles of beef may not be devoid of interest to both producers and consumers of meat. The stores extend from the Thames, and are approached through a huge tunnel, like a railway tunnel, but more lofty, with a line of rails laid up the centre to a length of some 500 feet. On each side of this main thoroughfare the stores are arranged in the form of large and lofty cavern-like arched chambers, each with an embrasure, barred and shuttered. On removing the shutters and touching a button the interior is revealed, illuminated by the electric light. It is a strange weird wintry scene. The thermometer registers 22°, or 10° of frost. Snow crystals hang from everything to which they can adhere, and the floor is white and glistening. From the base to the ceiling the sheep are packed like a wall, each sewed up in a white sheet, sides of beef and thousands of legs of mutton being disposed in a similar manner. There is a steady outflow of 2000 sheep weekly that were grazing three or four months previously on the pastures of New Zealand. Thirteen thousand sheep had just been landed by a large wharfinger, who has had barges specially fitted for transferring meat from the ships to the stores. The trade is great now, and far-sighted mercantile persons do not make provision of the nature indicated without having some good reason for its extension. It is, in fact, calculated that the cattle-rearing resources of New Zealand are equal to a supply of 100 tons a day for an indefinite period. Already the trade is having a marked influence in districts where markets are established in thickly populated districts for the sale of "frozen meat," in a general and not unappreciable fall in prices of home-raised meat. Taking one market, for instance, Croydon, thousands of breasts, necks, shoulders, and legs of mutton have been sold for weeks past, the first at 3d., the second at 4d., the third at 5d., and the last at 6d. per lb.; and what is more, not a few—no one knows how many, but the fact is undoubted—legs of frozen mutton have been thawed and sold as English mutton at 10d. and 11d. per lb. London butchers, of course, must "live," and it is very certain they *will* live well if they can find or make an opportunity of doing so; but it is not suggested that they are all alike, numbers of them being far too high-minded to deceive the public with their wares. But the fact that "frozen meat" is sold as English is not bad testimony as to the quality.

Nor are the operative classes the only purchasers of antipodean meat. Some of these are perhaps the most prejudiced against it, or have been. The well-to-do, not to say the wealthy, buy large quantities, and what may be termed educated palates are satisfied; but servants did not "take to it" readily. The difficulty has been got over, however, in some cases by having the meat cut up English fashion and sent in thawed; or, to put it from the servants' point of view, "the master has given up buying that nasty foreign stuff, and now we have beautiful English meat."

With some little hesitation I purchased a leg of mutton from the Cannon Street Stores, just as taken from the pile, for there is no picking and choosing, thawed it according to instructions, and cooked it a week after taking it home. The head of my domestic arrangements did not compliment me on my investment, and the coming dinner was not regarded as a treat in store, but rather the reverse. A disposition was manifest to find fault with the dinner, but it was of no avail; prejudice vanished, and I am now strongly pressed to buy a frozen leg every week and to get some beef besides. No better mutton was served by the same cook. The weight was 10 lbs., the price 5s.; a week previous an English leg of exactly the same weight cost 9s. 2d., and this was certainly no better, if as good as the former—hence the request for more.

But how is the temperature of the refrigerating stores kept down? Frost is the preserver of the meat—Nature's preserver—the frost being produced "by steam." The air is compressed into cylinders by powerful engines, the cylinders being surrounded by water. The heat generated by compression is extracted by the water, and the air then transferred in culverts and pipes cold and attenuated to where it is required, the atmosphere of the stores being precisely similar to that on the tops of mountains when the thermometer registers 22°, while the air is mild and muggy in the valley below. As a triumph of science and commercial enterprise the frozen meat industry is very remarkable, and home producers and consumers will be no worse for knowing a little about it. The branch of the business referred to is at 15, Dowgate Hill, Cannon Street, London.—J. W.

## FARMERS AND GARDENERS.

I THINK it is my duty to explain myself with reference to "Thinker's" remarks on my contribution on the above subject on page 138. With reference to the English and American producer, I will admit that they are about equal as far as their total freightage charges to the London market are concerned, but I am sure the Americans have great advantages over us in many respects, for they have fewer rates, no extortionate tithes to pay, unrestricted cropping, and they can often buy land as good for the amount of money that the farmer here has to pay as rent. I may state that cultivation in America is considerably cheaper, for they have a rich virgin soil, which for the present requires no manure, and also is free from weeds. They are not also subjected to climatic changes as we are in Britain, but, having settled periods of weather, they can cultivate their land uninterruptedly and harvest their crops without fear of their being spoiled by unfavourable weather. Another grievance of the British farmer is the deplorable condition of many of our rivers. In many of the river valleys the land is only just above the level of the water, thus not allowing the land to be drained properly, as there is not sufficient fall to the river. This is an evil which could be remedied, first by deepening the rivers where required, and secondly by removing surplus weirs in the river which unduly keep the water back simply for the purpose of keeping sufficient water to work a few mills. I think inferior culture of the soil is due—(1) to the insecurity of capital in land; (2) the absence of sufficient capital for practical working purposes; (3) land being unfavourably situated with reference to floods; (4) the refusal of landlords to keep farm buildings in repair; (5) too much restricted cropping; (6) the ignorance, laziness, and want of experience of certain farmers. The above I consider some of the principal causes of bad farming.

I agree with "Thinker" that the importation of so much poultry and eggs is a puzzle. But could not someone enlighten the farmers why the foreigner can supply the British public with the enormous amount of poultry, and eggs? Is it that they have a more genial climate? Are taxes, rents, &c., less there than in this country? Is poultry, reared on a small or large scale? And also are there any great secrets in the rearing and management of their poultry? I think that any information on the above subject would be most thankfully received by those interested in the question. As poultry rearing has been so often referred to as one of the things which will make farming pay, I think the farmer may claim some right to get practical information from those who are continually reminding him of poultry rearing.—A. E. H.

WEBB'S SAMPLE CASE OF PURE GRASS AND CLOVER SEEDS.—We have received a small case of these seeds from Messrs. Webb & Sons, Stourbridge, very neatly packed in stiff paper packets bearing the botanical and common names of the plants. In an accompanying list is given the respective number of seeds per cent. of each sort guaranteed to germinate, the best being from 90 to 95 per cent.

## METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				
	Baromet. ter at 33" and Sea Level	Hygromet- er.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		Rain
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1886.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
March.										
Sunday .....	7	30.244	27.2	24.6	N.E.	34.0	36.4	22.1	54.3	17.5
Monday .....	8	30.326	32.5	31.4	E.	33.8	39.6	23.7	72.4	18.8
Tuesday .....	9	30.419	31.6	29.1	S.E.	33.7	42.4	25.4	82.2	19.3
Wednesday ..	10	30.409	32.8	30.7	N.E.	33.6	38.8	28.2	79.7	21.2
Thursday ....	11	30.415	31.2	28.1	N.E.	33.4	40.8	23.8	82.4	19.2
Friday .....	12	30.340	30.3	28.1	N.	33.3	36.8	26.8	63.7	22.2
Saturday ....	13	30.380	32.1	30.3	N.E.	33.4	36.1	26.4	54.9	21.1
		30.362	31.1	28.9		33.6	38.7	25.2	69.9	19.9

## REMARKS.

7th.—Brilliant day, but very cold; hazy in evening.  
8th.—Dull early, fine bright day.  
9th.—Brilliant all day.  
10th.—Cloudy early, fine bright day, very cold.  
11th.—Nearly cloudless throughout.  
12th.—Cloudy, but a little sun about 2 P.M.  
13th.—Dull and cold, with a little sleet, not measurable.  
Another intensely cold and remarkable week. We have now had a month without single day on which the temperature has reached 45°, and we have had frost not merely on grass but in the air every day since February 18th. The earth temperature is becoming remarkably low; at 1 foot it is only 14° above freezing, and the same low temperature reaches to 3 feet below the surface.—G. J. SYMONS.





## COMING EVENTS

25	TH	Royal Society at 4.30 p.m.
26	F	Spring Show at the Crystal Palace (two days).
27	S	Royal Botanic Society at 3.45 p.m.
28	SUN	3RD SUNDAY IN LENT.
29	M	
30	TU	Spring Show at Westminster Aquarium (two days).
31	W	

### THE ROYAL HORTICULTURAL SOCIETY'S PROVINCIAL SHOW.

**W**E are glad to learn that arrangements have been made on an equitable basis between this Society and the Liverpool Horticultural Association for concerted action, with the object of producing an exhibition of the greatest magnitude in the Botanic Gardens and Wavertree Park of the famous maritime city. That this arrangement will be mutually advantageous there can scarcely be a doubt, for to divide the local resources, great as they are, between two shows within a month of each other would inevitably weaken both. The date may possibly be fully too early for staging in the best condition much garden produce of the Liverpool district, but it is to be remembered that the show is to be regarded as representing the horticulture of the nation, not of a locality. That the skilled cultivators of the neighbourhood will hold their own in many of the classes there is not a doubt; but be that as it may, it is evident a sufficient breadth and liberality of mind exists to welcome the best produce from wheresoever it may come. The Liverpool gardeners show their strength in the decision lately arrived at, and the status of their Society will not suffer by this alliance with the Royal in promoting high culture in British gardens.

We have before us a report of a special general meeting of the Liverpool Horticultural Association, convened by the requisition of thirty members, to consider the advisability of the amalgamation in question, in order to render the exhibition to be held towards the end of June a great success. The meeting was held in the Nisi Prius Court, St. George's Hall, at eight o'clock on the evening of the 18th inst., Mr. White, Vice-President of the Association, presiding. The Court was crowded, probably 150 to 200 members being present. It may be well to state that the Committee of the Association had decided by a majority of two not to accept the terms of the Royal Horticultural Society, but to hold their Show as usual in Sefton Park or elsewhere towards the end of July. The terms of amalgamation, as stipulated by the Royal, were £250 for 3500 tickets—namely, 1500 for the first or second day, and 2000 for any other day. Mr. White, after reading the circular and explaining the objects for which the members were called together, called upon Mr. E. Bridge, the Secretary, to read the correspondence that had passed between the officials of the Royal and those of the Association. Mr. W. Bardney then submitted a resolution to the meeting to the effect that the Committee accept the terms of the Royal Horticultural Society to pay the sum of £250 for 3500 tickets, admitting the subscribers on the first and second day, the Association not being held responsible or liable in any way for any further amount than that specified for the tickets. "The feeling," continues the report, "was somewhat strong against the idea of the ordinary members, which are nearly all gardeners, not having admission till after the second day. Mr. Bardney stated that he thought the officials of the Royal would not treat them less advantage-

ously than the Manchester Society, who always make provision for the admission of gardeners on the first day for a small sum. He believed they would grant the tickets for the sum named, even if they did not admit the ordinary subscribers towards evening on the opening day, which he and several of his supporters believed would be the case, on the ground that it could make very little difference to the Royal what day they admit them, for there is plenty of room; and if announced that they would admit them on the first day the Royal would secure the united efforts of all members of the Association."

Mr. R. G. Waterman seconded Mr. Bardney's resolution, which was ably supported in speeches by Messrs. R. W. Ker, J. Cowan, and J. Gore. An amendment was submitted to the contrary; but, though most ably advocated, it only secured thirty-nine votes, Mr. Bardney's resolution being carried by an overwhelming majority. The meeting occupied nearly two hours, and the clapping and cheering was most enthusiastic when it was perceived the proposition had been so favourably received.

We have received a letter from a member of the Liverpool Association, who appears to regret the decision arrived at on the grounds that each member ought to have received notice of the meeting; that a later fixture would have been more seasonable, and that the admission of members on the "third and fourth days" of the show is not an arrangement that can be regarded as satisfactory.

It is only necessary to deal with the last objection, and this we shall do in the expression of a hope that the members of the Liverpool Association will be treated in the most liberal manner that is practicable. We venture to suggest that as there will be more or less of confusion on the first day, that though honorary members might be admitted then, early in the morning of the second would be the best time for gardeners to enjoy the show—say from seven to ten o'clock, if such an arrangement could be made, or some other by which they could have a "quiet look round" before the admission of the general public—a plan which has answered well and given much satisfaction at great exhibitions we have seen in Scotland, but as the judging was completed by about eight o'clock in the morning, early admission was granted to gardeners on the first day, which obviously cannot be done at Liverpool. We have no doubt, however, that everything that can be done will be done both in the interests of the honorary and ordinary members of the Liverpool Association, and as conducive to the success of the great undertaking.

### HINTS ON FIRING.

SEVERE and prolonged cold weather has exercised all the ability of growers to protect their plants and secure an atmosphere best calculated to enable them to resist the debilitating influence of the increased fire heat. The temperatures required in the various houses are a source of much anxiety to the gardener at all times, as so much of successful practice depends upon their maintenance, especially at night. The duty of stoking falls in most private places to the young gardeners, and very advisedly, as no man will ever be competent to take charge of a collection of plants, or have charge of structures in which forcing operations are carried on, unless he thoroughly understands and has practical experience of the duties of stoker. In this respect the nurseryman has a great advantage over the private grower. The former has such an extent of glass that he finds it suits his purpose best to employ a professional stoker. These experts not only maintain the exact temperatures ordered by the grower, but so regulate the fires by the variations of the external temperatures that they in the course of a season save much fuel.

Respecting night temperatures the stoker almost always errs on the high side—that is, if we are forcing Vines, and the order is to keep the temperature at 60° on cold nights, or



65° in mild weather, it is common to find it 65° on the cold, and 70° on the mild night. When the weather is uncertain this is perfectly justifiable. As a rule, however, the temperature should be maintained at that ordered, and at making-up time the fire will, if properly attended to in the earlier part of the evening, be sufficiently burned down to be easily cleared of ashes and clinkers. On the other hand, if the fire at leaving off work time has been banked up so as to last until ten o'clock, in order that pleasure may take precedence of duty, then it is likely we shall find something beyond the 5° extra, the temperature corresponding to the day maximum with the fire low or nearly out. Fires ought to be so attended to through the afternoon and early evening as to be ready to act upon the temperature upon any change in the weather between leaving off time and the final banking up at ten o'clock, and the stoker must take a forecast of the weather prior to seeing to the fires.

A good stoker invariably develops into a good gardener, inasmuch as stoking requires unremitting attention, constant observation, forethought, and sound judgment. Under ordinary conditions the influence of solar heat will be spent by leaving off time, the temperature having settled down to its ordinary height from fire heat, and the heat subsequently, or through the night, will be dependant upon the stoker. If the night be dull the fire must be such as to maintain the temperature steadily as required, needing only freshening if frost set in, or snow or rain fall. Firing by fits and starts is only wasting fuel, and a certain method of insuring disaster in culture. Starting the fire on an appearance of frost is right, but it is highly prejudicial to keep it going briskly until the pipes are as hot as possible, and the temperature made to rise rapidly, for the simple reason that the heat will increase afterwards and the night temperature be too high. Allowance must be made for the continued action of the fire, and the latter regulated accordingly. Some start fires and leave them until they are burned low or almost out. Then the fire takes time to get up again, and begins to act at a time when the temperature should be falling, the house being 5° or 10° warmer than is necessary in the morning.

A very important matter in stoking is the regulation of the draught by means of the damper. There is no question of the importance of having a damper in the flue, beyond the furnace or flues that are used to give direct or indirect heat to the boiler. There should be the usual furnace door, with half-inch iron plate with its inch cavity to keep the heat of the furnace from being cooled, as it would were there only the outer plate or door radiating the heat from its highly heated surface. The inner plate is usually pierced with some half-inch holes, which prevent its being highly heated and keep it from warping. A hole or two in the outer plate may or may not be of consequence; if there be they should have slides for closing or opening them at will, but I do not see that we want air by the furnace door. The ashpit door must of course have a ventilator in its centre, as some air is essential for even slow combustion, and by these means we can regulate the draught. Nevertheless, we need something to keep the heat about the boiler, and a damper in the ascending shaft or chimney is advisable, so that by regulating the current of air entering by the ashpit door, whether these are folding or sliding, and keeping the heat from passing up the chimney, we obtain complete control over the draught. The damper must be used according to the weather expected. If at banking time there are signs of frost the draught must be regulated according to its probable intensity, whilst for rain it should be regulated as for 5° of frost, and in case of snow being likely to fall calculate and regulate as for 10° of frost. Always allow for the external temperature descending through the night. If it does not do so the heat in the morning will be too high, but it must be remembered that for at least half the night the temperature was right.

In the morning whilst the fire is low make a thorough clearance of ashes, clinkers, and if need be of soot from the flues, the aim always being to secure a clean implement,

which works more easily and effectively than a dirty one, besides being cheaper or more economical. It is essential that the fire have a clean course, air having free access to the furnace, and an equally free exit for the products of combustion. Nothing indicates the character of the stoker so much as the way the stokehole is kept. If slovenly the boiler and everything in connection with it is out of order, the heat irregular, and great waste of fuel occurs. A good stoker will raise the heat in good time in the morning. He will be at work betimes, and at eight o'clock in winter can have a temperature little short of that required as the day maximum from fire heat, and whether there be sun or not a good long day is secured. It is no use forcing growth in the dark, for we cannot then obtain elaboration of the sap or solidified, short-jointed, sturdy, fruitful growth. A forecast will be taken of the coming day as of the night. If likely to be a dull day the fire will be so regulated as to maintain a steady and progressive heat until one or two in the afternoon, then the tendency will be downwards though steadily, the chief thing being in dull days to maintain the growth already secured healthy without any great addition until there is sun and light to effect its proper maturation. If likely to have some clear weather alternating with cloudy the fires are kept steady for the day. What advance is made is due entirely to sun heat; greater facilities are afforded for ventilation without lowering the temperature, and the essential of elaboration is secured in a most satisfactory manner.

On bright and frosty mornings small and sharp fires should be the rule, so that by the time the sun makes itself felt in the houses the fires are so low as not to afford much heat, and excessive ventilation to prevent the temperature rising too high will be avoided. The fires on such occasions will be started sufficiently early in the afternoon that by the time the sun's power is waning the heat given out by the pipes will prevent a hasty depression, yet aiding to keep up the temperature, a long day of work being effected, more in the way of elaboration and assimilation being accomplished on such day than in a week of dull weather when the whole of the conditions are artificial. The night temperature after such days will be kept steadily decreasing to its minimum; and if the night be very cold, as is usually the case after a bright day, the temperature may fall 5° lower than the ordered minimum, and instead of this disturbing the chief, his countenance will have the smile of satisfaction, more especially as the heat in the pipes in the morning shows an early rising of the temperature meeting that of the prospective sun heat, giving promise of another long day's work in improving the texture and colour of tender foliage, which cannot be effected when deprived of the fruitful influence of the sun.—G. ABBEY.

## REMARKS ON SOWING VEGETABLE SEEDS.

(Continued from page 207.)

BRUSSELS SPROUTS AND EARLY BROCCOLI.—It is hardly possible to err in sowing the former too early in the year, especially when no heat is available. Unless the plants are finally planted out before the majority of the various sorts of Broccoli, Kales, and Savoys, they rarely grow to a good size or produce an abundance of close hard sprouts, and unless sprouts are very firm they do not possess that delicious marrow-like quality for which they are so much valued. The growers for market frequently sow the seed in the open as early in February as possible, protecting the young seedlings during severe weather with straw litter, but I am afraid they will have had a difficulty with their seed beds this season. Even when they are somewhat late in planting, their plants, owing to the firmness of ground and exposed positions, usually yield good gatherings, the only difference being that the plants, perhaps, are 2 feet instead of 3 feet in height, which makes a material difference in the value of the crops. Private growers can easily raise sufficient plants for their garden, as a pinch of seed may be sown either in pots, pans, boxes, or frames, little or no heat beyond the protection of a frame or house being necessary. The plants ought to be well exposed before they become drawn, and when fairly strong should be pricked out on a warm border about 4 inches apart



each way. If properly preserved from slugs and slightly protected with branches of evergreens they soon grow to a good size, and when they touch each other may be finally transplanted with a trowel. Some dispose them between rows of Broad Beans, but the latter are apt to weaken the Brussels Sprouts, and I recommend that nothing but either Early Ashleaf Potatoes, early Turnips or Lettuces be grown between them, the crop being of too much value to justify incurring any risks. The rows may be 3 feet apart, the plants in the rows about 2 feet asunder. The Aigburth is a very reliable sort, but is rather too coarse for connoisseurs, and for home use we prefer either Sutton's Exhibition, Webb's Matchless, Veitch's Exhibition, or Ne Plus Ultra, the latter being exactly similar to Northaw Prize—a fact which Mr. Merritt the raiser of the former may be able to account for. The only Broccoli that need be sown early, or in the same manner as the Brussels Sprouts, is Veitch's Autumn Protecting. We grow three times more of this valuable sort than of any other Broccoli, and, with a little attention in the way of lifting and storing in vineries or pits as fast as the heads become near the size of a cricket ball, it yields a supply from October till February. Snow's Winter White when sown early grows to a great size, but produces few or no good heads, and monstrosities we have no room for. Late in April or early in May is quite soon enough to sow this popular but somewhat over-rated sort.

**CAULIFLOWERS.**—Autumn-sown plants are very scarce this season, and in many cases it is advisable to sow seed in mild heat of Extra Early Forcing, as well as either Dwarf Erfurt or Early London and Veitch's Autumn Giant. The plants of the former may be potted and eventually planted under hand-lights or in a large rough frame, a little protection bringing them on rapidly; the later sorts to be pricked out on a warm border or in boxes, and placed under glass if need be till large enough to plant out. Fortunately Broccoli appears to be but little injured; and later on, if such sorts as Sutton's Late Queen, Ledsham's Latest of All, Model, Cattell's Eclipse, and even Leamington, are carefully lifted and bedded in thinly on a north border, a little good manure being firmly placed about the roots, the supply of white and very good Broccoli can be maintained, it may be, till the middle of June.—W. IGGULDEN.

#### MUSCAT OF ALEXANDRIA AND BOWOOD MUSCAT.

"G. G." confirms the idea that I at first formed regarding the setting of the Bowood Muscat. Evidently it was set before the boiler broke down, and though the heat does not seem to have been satisfactory for some time previous to the breakdown of the boiler, it may be assumed that it would be considerably greater than after that breakdown and during the time the Muscat of Alexandria was in bloom.

The Muscat of Alexandria having to face a time of trial, no doubt failed under that trial, but would not Bowood have done the same? I have to thank "G. G." for his offer of eyes of Bowood, but I may say I am not sufficiently convinced of its superiority or difference from Muscat of Alexandria to tempt me to break a rule laid down some years ago—viz., never to take young Vines or Vine cuttings from anyone, for fear of getting phylloxera. Not that I would for a moment suggest that "G. G." may have any such pest about his place, but simply because I am not inclined to break the rule laid down and hitherto strictly observed.

Muscat of Alexandria has for so long done well in regard to full fruiting and good setting that I am not tempted to wish to change it. The time and care required in order that a good set may be obtained are well repaid, and nothing but mismanagement or inattention can be blamed when a failure of Muscat of Alexandria, in regard to setting, is chronicled.

Of course under such trying circumstances as "G. G.'s" Muscat of Alexandria was, little wonder need be expressed at its failing to set. Give it fair play and good treatment, and Muscat of Alexandria will set well, swell well, and keep well, and failure in regard to it can generally be traced pretty easily to some cause. I am not disposed to doubt "G. G." when he says his Bowood produces bunches as freely as any of his thirteen varieties, and is only inferior to four in regard to its setting qualities, but I claim for Muscat of Alexandria equally free fruiting, and, when properly attended to, also equally good setting qualities. There will evidently always be two parties in regard to the question of the distinctness of Muscat of Alexandria and Bowood, and no doubt both are, and always will be, equally strongly convinced that they are right. "When doctors differ, who shall decide?"—A READER.

#### HINTS ON ORCHID CULTURE.

(Continued from page 215.)

**WATERING, SYRINGING, RESTING.**—Few plants that are not aquatics require so much water as Orchids both about their roots and in the atmosphere, and therefore the supply of moisture is an important operation. Healthy Orchids when growing freely can scarcely have too much water, and during the summer they will need attention

twice a day independent of damping the paths and stages, or syringing. In the winter and during the resting period of Orchids, whether terrestrial or epiphytal, the supply must be greatly reduced for all except *Odontoglossums*, *Masdevallias*, and others which continue active throughout the year. Non-pseudo-bulbous Orchids must also have a more liberal supply of water than those with pseudo-bulbs, which serve as storehouses of nutriment. In the summer and growing season the material on the shelves and the paths must be kept well moistened, and in cool houses shallow tanks should be provided at the sides of the paths. For supplying the plants and syringing rain water is the best, and it must always be used about the temperature of the house. Hard water should be avoided except for damping purposes, as though lime is not injurious to some Orchids it disfigures the foliage. Baskets and blocks can be dipped, but this must be carefully done with the former, or the drainage may be disturbed. There is some difference of opinion respecting the beneficial effects of syringing, but the majority of cultivators have proved its usefulness, and in some large trade establishments the plants are syringed most liberally, ordinary watering-cans being seldom used. Morning and evening syringings in the spring, summer, and autumn are beneficial to growing Orchids, but care must be exercised to keep the water off the flowers, and as much as possible off young tender growths, particularly those of *Læias* like *L. purpurata*; while in the winter it should be discontinued, especially when the weather is severe. At St. Albans a simple and labour-saving mode of damping the houses is adopted, which is, however, only suitable for large establishments. Under the stages and along the paths in every house are taken two or more pipes 1 inch in diameter, which are perforated at short intervals and connected with the main supply, so that by turning taps in convenient positions the whole house or any portion can be quickly damped with little trouble.

The atmosphere of Orchid houses must be constantly moist, and in hot weather this can only be effected by a frequent and liberal distribution of water upon the paths and stages. A useful instrument for determining the amount of moisture in the air is the hygrometer, consisting of two thermometers graduated exactly alike, with small projecting bulbs. These are affixed an inch or two apart to a porcelain or other frame, and the bulb of one is connected by a little syphon of cotton, or lamp-wick, with a small bowl kept constantly filled with water. The evaporation of water from the latter, termed the wet bulb, by the extraction of heat, causes the mercury to fall, and by comparing the temperature thus registered by that shown in the dry-bulb thermometer, which indicates the temperature of the house, it is seen at a glance whether the air is dry or moist. When saturated with moisture the mercury in the two tubes will stand at the same level, and the drier it is the greater will be the difference between them. This simple instrument can be easily constructed if two evenly balanced thermometers are obtained, but they can now be purchased very cheaply, and should be employed wherever Orchids are grown in quantity. In fig. 42 is represented a convenient hygrometer from Messrs. Negretti & Zambra, Holborn, but there are several other forms, some being constructed with a mechanical arrangement and dial to show the condition of the air.

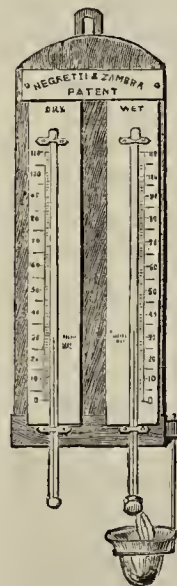


Fig. 42.

Deciduous terrestrial Orchids require a decided period of rest, during which water is either entirely withheld or is given in very small quantities. Evergreen pseudo-bulbous Orchids must never be "dried off," but their rest consists in lessening the heat and moisture, though in the case of the *Odontoglossums* the supply must always depend upon their condition. Deciduous pseudo-bulbous Orchids also require a period of rest, but water must be given in sufficient quantities to prevent shrivelling.

**VENTILATING AND SHADING.**—In warm moist districts ventilation can be given much more liberally than in cold exposed or dry situations, and to these varying circumstances are due the different opinions on the advantages to be derived from free ventilation. Wherever the climate is suitable and when the weather is favourable there is no question that most successful results are obtained by admitting air freely not only to cool-house but to tropical Orchids, and I have seen the late Mr. Percival's fine *Cattleyas* being absolutely blown about by brisk sea breezes, and Dr. Paterson in warm Bridge of Allan has adopted a similar system with equal advantage. For cool Orchids a liberal supply of air during the greater portion of the year is essential, and in one of the largest trade establishments small wooden pegs are placed between the laps of the glass, so that there is a space of an eighth of an inch between each two panes, and a similar space at the bottom of the rafter. In the same place the walls are constructed so that there is a moveable half-brick at the end of each



whole brick just below the side shelf and opposite a hot-water pipe. These act as plugs, which are removed in spring immediately the frost has departed and are not put in again until autumn, thus affording a free admission of air both day and night. This is only noted as an example of what can be done, for in ordinary establishments a piece of board 8 or 9 inches wide, sliding in two grooves outside the house opposite the pipes, is sufficient for ventilation beneath the stages, though iron or wooden hinged shutters are also employed. In one place I have seen the following method adopted: a channel runs down the side of the path under the pipes, communicating with a small chamber outside the house covered with a grating. The channel opens into the house by several apertures, which can be opened or closed by small lids, and the cold air thus admitted ascends directly to the pipes, being partially warmed before it comes in contact with the plants. The outside grating can also be covered when necessary. Roof ventilation can be accomplished in various ways according to convenience, but for all warm houses, especially in cold bright weather, it is advisable to have pieces of tiffany stretched across the opening to break the force of the cold current. During the winter whenever the wind is keen or frost severe never ventilate, and in very hot dry weather it is better to shade well, employ no fire heat, damp liberally, and ventilate but little. Without artificial heat the temperature of all but the typical cool houses may be allowed to rise considerably above the maximum temperatures given in the table without danger if water be abundantly supplied. For this reason the houses may be closed at 3 to 5 P.M. according to the season and the weather, but a little all-night ventilation in the height of summer will not be hurtful to tropical Orchids, and for the others it should be the rule at that time of year.

The ordinary roller blinds are the most convenient for shading purposes, as they can be quickly run down or up according to the weather. A very convenient form of blind is the Parisian chain blind, which is formed of narrow strips of wood a short distance apart, so that, while effectually breaking the force of the sun's rays, they do not darken the house. These are giving satisfaction in several Orchid-growing establishments. For *Odontoglossum* houses in sunny positions permanent shading is sometimes applied to the glass, and the best I have found for the purpose is prepared in the following way: 1 lb. each of tallow and flour and  $\frac{1}{2}$  lb. of whiting are mixed together with cold water and sufficient Brunswick green to tint it as required, and the mixture is then warmed in a pail before applying it to the glass, which should be done when the sun is shining. This lasts well and does not render the house too dark if put on thinly. This will only be needed in the spring and summer, and houses with a north aspect will not require it. Some Orchids require more shade than others, and those like *Cypripedium* or *Phalænopsis* should be given the shadiest side of the house. Artificial shading should, however, only be employed in very bright weather and in the hottest part of the day to prevent the temperature rising too high, as too much shade weakens the plants and prevents their growths ripening.

**PROPAGATING.**—Few Orchids can be quickly increased by any artificial method of propagation, and it is to this fact that hybrids raised in this country so long maintain their value, whereas an introduced species may be scarce and high-priced for a time, and then perhaps a fortunate collector sends home a large shipment and the value falls immediately. Amateurs cannot depend upon propagation to add much to their stock, as in most cases it takes too long, and it is far better to purchase small established plants, which can be had much cheaper than formerly, or even to procure imported plants. It may happen, however, that a particular variety is possessed that it is desirable to increase, or perhaps it is wished to try a few experiments, and in either case some hints will be needed as to the modes to be adopted. In the first place do not commence experimenting with any valuable plant; gain a little experience first with some of little consequence, for Orchids are easily injured by any process of division unskillfully performed, and some seem to object to it altogether. Strong healthy examples only should be selected, and even these must be carefully treated afterwards. The latter remarks especially apply to the method adopted with many Orchids having short ovoid pseudo-bulbs of the *Cattleya* or *Odontoglossum* types—namely, cutting between the pseudo-bulbs and through the rhizome, so as to retain some roots with each. The safest plan is to leave these in the pot for some time until it is seen that fresh growths are coming from the divided portions, when they can be potted or otherwise as is most convenient. This plan is also adopted when it is desired to produce what are termed “back growths” to make a better specimen, as old pseudo-bulbs will often form growths when thus treated, greatly improving the appearance of a plant. *Lycaste Skinneri* is readily increased in this way, and old pseudo-bulbs can be separated and potted singly, giving them little water until a bud starts from the base. Most hardy tuber-bearing Orchids can be increased by division in autumn after their stems are dead, or preferably in early spring before growth starts.

For many exotic, deciduous, or evergreen Orchids with long cylindrical pseudo-bulbs another system may be tried, as, for example, with *Dendrobium nobile* and species of similar habit. Of these, any pseudo-bulbs that have flowered but are not old or shrivelled may be cut from the parent plant and laid lengthwise in moss, secured to a block or in a pan, or cut into lengths of about 6 inches and inserted in pots of moss kept constantly damp. *Dendrobium nobile* produces young plants from the nodes very readily when treated in this way, and I have reared a dozen from one pseudo-bulb; but usually the plants are chiefly formed in the upper portion, and are occasionally so produced without removing the pseudo-bulbs from the old plant, while some prefer pegging them down round the pot in which they are growing, though this is sometimes inconvenient. *Thunias* are propagated by cuttings in the same way as mentioned for *Dendrobiums*, but sand should be substituted for the moss. The best time for such operations is early in the spring, as it gives the young plants so obtained a better chance of becoming established before winter, which in our climate tries them severely even with the best care. When separated or potted singly water must be supplied in small quantities until some progress is observed, when they may be gradually accustomed to the treatment given to the other plants. *Vandas*, *Aerides*, and others of similar habit can be increased by taking off side breaks or the tops of the plants with a few roots attached and potting them in moss, and when the former become too tall they are occasionally reduced to more convenient size in this way; but they should receive very careful attention for some time afterwards in shading and keeping them close. *Cypripediums* are easily increased by division in the ordinary way, and skilful growers do not hesitate to practise this with the most valuable hybrids.

What may be termed natural methods of propagation can be taken advantage of with Orchids which produce young plants upon their stems or pseudo-bulbs, like several *Epidendrums*; others, as the *Phalænopses*, particularly *P. Lüddemanniana*, occasionally bear plants on their flower stems or on their roots, as with *P. Stuartiana*; while others, like *Calanthe vestita* or the *Pleiones*, produce young plants on their old pseudo-bulbs that can be separated and grown on as advised.

If the ordinary methods of propagation are slow, raising Orchids from seed is a still slower process, and it cannot be recommended except for those who are interested in obtaining hybrids. It requires much patient waiting, constant attention, and perhaps after years of this care some enemy may devour the plant; it may die some hot day from a little neglect in watering, or it may “damp off” in a dark cold winter. Independent of these difficulties seed-bearing is exceedingly weakening to Orchids; a weak plant may be killed and a strong one so injured that it will take several seasons to recover its usual condition. Even producing flowers alone is weakening, and young delicate plants should not be allowed to produce many or retain them long; in fact it is better not to permit any plant in doubtful health to flower at all. Then it is difficult to insure the proper maturation of the seed-pods, and even when these develop and ripen satisfactorily they are occasionally found to contain no seeds, or only imperfect rudimentary bodies that will not germinate. Mr. Harry J. Veitch in his paper read at the Orchid Conference gave some interesting particulars concerning the time the capsules take to ripen, from which the following are selected as examples: *Calanthe*, three to four months; *Masdevallia*, four months; *Zygopetalum Mackayi* crossed with *maxillare*, six months; *Phalænopsis Schilleriana*, six months; *Lælia purpurata*, nine months; *Cypripedium insigne*, ten months; *C. Spicerianum*, eleven to twelve months; *Cattleya labiata* and others, eleven to thirteen months; *Anguloa Clowesi*, *Chysis bractescens*, *Dendrobium aurcum*, *Maxillaria Harrisoniana*, and *Odontoglossum maculatum*, twelve months. Considerably longer periods are required to bring the plants from the germinating to the flowering stage, as the undermentioned facts will show from the same authority as the preceding. *Dendrobium aureum* crossed with *D. nobile*, three to four years; *Phaius* and *Calanthe* about the same time, the seed of the latter germinating in two to three months from the time of sowing; *Masdevallia* and *Chysis*, four to five years; *Cypripedium Schlimi* crossed with *longifolium*, four years; the reverse cross, six years; *Zygopetalum maxillare* crossed with *Mackayi*, five years; the reverse cross, nine years; *Lycaste*, seven to eight years; *Lælias* and *Cattleyas*, usually ten to twelve years, but some have taken much longer, as *Lælia callistoglossa*, which was sown in 1858 and flowered in 1877, the quickest being *Lælia triophthalma*, sown in 1875 and flowered in 1883.

Seed must be sown immediately it is ripe, but it should be done if possible in the spring or early summer, as it is much more likely to germinate then than in autumn or winter. It is usually sown upon living moss in pans where other Orchids are growing, or upon blocks of wood, Fern tree stems, the sides of pots, and various other ways; but the first named is the best, and the chief object is to keep the



moss constantly moist, disturbing it as little as possible, until the diminutive plants have made some progress and are forming their leaves. They may be then very cautiously removed and placed in thimble-pots of moss plunged in a larger size, the space between the two being filled with moss kept regularly moist. The utmost care will be needed in this respect, and the seedlings must not be exposed to the direct rays of the sun or draughts of cold air. After some years of trouble the cultivator may possibly be rewarded by seeing a novelty of great merit flower. Amateurs must not be discouraged by these difficulties, but all who have the time should try some experiments, for though wonderful progress has been made in hybridising by Messrs. J. Veitch & Sons, there is still an ample field for investigators, and many gentlemen have turned their attention to the matter in recent years. In any attempt of the kind care must be exercised to prevent the intended seed-bearer being fertilised from any other source, both before and after the desired cross has been made. This may be effected by tying a piece of gauze round the flower when it is expanded, also removing its own pollinia.—AN AMATEUR.

(To be continued.)

### SHRUB PLANTING IN SPRING.

NURSERY plants received at this time require very great care in order to assure the plants taking to their new quarters. In remarking on this question, it must be understood that the soil here is a very poor one, much of it gravelly and sandy, while dry east winds prevail during the spring months. If the plants arrive from a nursery, perhaps after a few days removal it will be found that wetting the roots and top with water and keeping them covered with mats or straw until required for planting will refresh them very much. It is better to do this than to lay the plants in soil. Planting must be taken in hand as quickly as possible. In our poor soil it is found of much advantage to plant in some light material. Leaf soil is very good for this purpose, and so is any compost formed from decayed vegetables and other refuse from the garden. It is in all cases better to plant deeper, and the more sandy the soil may be the deeper should the roots be placed. Especially is this necessary with members of the Pine tribe, Cypressess, &c. All the plants have basins left for necessary water as required, and in the case of shrubs of extra value a mulching of dung repays the outlay.

Then with regard to watering. Enough should be poured into each basin to soak through and through the contents of each pit; and this ought to be done as soon as the shrub is planted and secured to a stake. In an hour or two thereafter a little dry soil scattered over the surface acts as a good conservator of moisture. Both deep planting and watering of newly planted shrubs are condemned as being injurious to the plants, and I have no doubt that is so under certain conditions, but in our circumstances, and which are not peculiar, I have found that both are points that are necessary in open soil. In heavy soil deep planting would of course have a very different effect. During any period of drying weather a weekly application of water is an absolute necessity, and care must be taken that the plants do not suffer before water is given. I have transplanted shrubs and Conifers in autumn which had been received the spring of the same year in very poor condition, and under treatment as described they can be removed with good roots and require no further attention after. On the other hand, shrubs left to themselves, though they may and do struggle through, are often so severely damaged that it takes years before they are established.

Reverting to the question of laying in shrubs which come from a distance, my opinion is that the practice is not beneficial to the plant. The exact reason why shrubs should resent being planted in soil for a few days or weeks, and then lifted and planted out permanently, is not quite clear to me; but I have no doubt that they do resent it, as the effect has often been forced upon me. Anyone who has work of this kind in hand may easily prove to his own satisfaction the difference resulting from, on the one hand, covering shrubs completely with straw after moistening them, and, on the other hand, covering the roots with soil until they can be planted.

Shrubs which give way during the early summer may in many cases be saved from death by cutting over the plant a few inches above the surface of the soil. If any of the roots are fresh and the planting been sufficiently deep, shoots will be formed before the end of summer, and the foundation of what may be a good specimen in a few years will be laid. It may be noted that the present is a very good time to get large shrubs prepared for removal at some future time. This is done by marking off the size of ball that it is wanted to remove with the plant in the form of a square; then cut down a trench on each side of the square, leaving the corners untouched. If the roots are few and

large, it may be necessary to complete the work by cutting across the angles at each corner the next year, but generally the one root-pruning will do. If the plant be of value the trenches should be filled with light material pressed firmly down, and more young roots will be formed, and that more rapidly than in cases where the soil taken out is merely returned. It may be pointed out that square balls are most easily removed, as boarding can be fitted down each side, and the ball, as it were, enclosed in a box.

To those who have not tried summer planting, it will be of interest to know that blanks in conspicuous positions arising from deaths in spring-planted shrubs may be made up at any time in the summer months, provided the work is undertaken in dull weather and the plants removed with a ball of soil moistened and kept moist for awhile after replanting. For this purpose a few reserve plants put into a bed of light material in which they can make a ball of roots quickly is of much service. Failures of all kinds are best mastered and got rid of as quickly as possible, and the matter under review is certainly no exception to that rule.—B.

### SALVIA BICOLOR.

THE genus *Salvia* is best represented in our gardens by the tender and half-hardy species, of which *patens*, *splendens*, *involucrata*, and



Fig. 43.—*Salvia bicolor*.

*gesneræflora* may be taken as illustrations. The hardy section includes, however, many desirable species, of which the *S. bicolor* here figured is an example.

Its blossoms taken individually are, perhaps, less attractive than those of the now common *S. patens*; but, on the other hand, they are far more abundantly produced, and are much less fugacious, remaining expanded several days after their full development. In any moderately good soil the plant attains the height of 3 or 4 feet; and clothed as it is with very handsome foliage, an established specimen forms, when in flower, an exceedingly interesting object. Its blooming period extends over a period of two or three months if prevented from ripening seed.

It is, moreover, perfectly hardy, and requires, therefore, none of the attention necessary to preserve its more tender congeners from the rigours of our winters. So numerous, in fact, are the claims of the *Salvia bicolor* to attention, that it seems surprising that this species should be comparatively so little known. It was first introduced into this country as early as 1793, but appears to have been almost entirely lost until its re-introduction about 1845 from the north of India by Messrs. Standish and Noble, Bagshot.



*Salvia bicolor* may be readily increased either by division of the roots in spring or by seed, which generally ripens freely, but which must be gathered just before it is fully mature, or, like that of the *S. patens*, it falls from the nodding calyx.

It should be sown on a gentle hotbed early in spring, and the seedlings, when an inch or two high, must be transferred singly to small pots of light soil, and subsequently shifted into larger, until the plants are fit for turning into the borders in May. They will usually flower the first season, as is the case with nearly all the *Salvias*, though not, indeed, so early as older plants. In the absence of a hotbed we have no doubt that seeds would readily vegetate if sown in a warm border about the end of April, especially if assisted by a hand-glass, or protected at night from frost and snails by having a flower-pot turned over them.

Although *Salvia bicolor* has been found, as we have already intimated, in the north of India, it appears also to be a native of Barbary, from which country it was first introduced. This plant must not be confounded with the blue-and-white variety of *pratensis*, commonly sold under the name of *bicolor*.—W. T.

## ROYAL HORTICULTURAL SOCIETY.

MARCH 23RD.

HYACINTHS, Daffodils, and Orchids were plentifully shown in the conservatory at South Kensington on Tuesday, and collectively they formed a very interesting exhibition, but the Hyacinths were not so numerous as usual, the Daffodils occupying much the greater space. Amongst these the members of the Narcissus Committee found much to occupy their time and attention, while the orchidists were similarly pleased with the display of their favourites. Of the latter Baron Schröder's magnificent *Dendrobium crassinode-Wardianum*, and handsome specimen of *Cattleya Lawrenceana*, with Messrs. W. Thompson's beautiful example of the hybrid *Dendrobium Leechianum*, were the chief attractions, though several other notable plants were exhibited by continental growers. Messrs. J. Veitch & Sons' and Messrs. J. Cutbush & Sons' Hyacinths included admirable specimens of those useful bulbs, the Daffodils being from Messrs. Barr & Son, T. S. Ware, and Collins Bros. & Gabriel. During the afternoon there was a good attendance of visitors, as the day proved very fine and exceedingly mild.

FRUIT COMMITTEE.—Present: T. Francis Rivers, Esq., in the chair; and Messrs. Arthur W. Sutton, W. Warren, G. T. Miles, J. Willard, Charles Ross, G. Norman, P. Crowley, Harrison Weir, T. B. Haywood, William Denning, G. Bunyard, J. Woodbridge, R. D. Blackmore, H. J. Veitch, F. Mason, and Dr. Robert Hogg. This Committee had but little business to execute, as there were few contributions. Mr. Lye, Market Lavington, sent tubers of Potato King of the Russets, which has been tried at Chiswick, and a seedling from a cross between Old Fortyfold and Schoolmaster, a round variety with purple eyes, which was referred to Chiswick for trial. The same exhibitor also had samples of a seedling Onion from Golden Gittau and White Spanish, for which a letter of thanks was accorded. Mr. J. Walker, Pomona Farm, Withington, sent a seedling Apple that was passed. Messrs. Foster and Pearson sent samples of their ventilator previously noticed, and Mr. Horley, Toddington, Beds, had a specimen of a neat and simply constructed hand-light. A meeting of the Fruit Committee is to be held at Chiswick on Tuesday, the 30th inst., for testing Potatoes.

FLORAL COMMITTEE.—Present: James O'Brien, Esq., in the chair, and Messrs. E. Hill, H. M. Pollett, John Dominy, Thomas Baines, R. Dean, W. Holmes, James Walker, H. Herbst, H. Bennett, W. Bealby, John Laing, W. H. Lowe, Amos Perry, H. F. Lendy, H. Turner, B. S. Williams, and Dr. M. T. Masters.

Orchids.—There was an interesting and beautiful group of these from numerous exhibitors, several novelties being certificated. *Dendrobium micans*, from Messrs. J. Veitch & Sons, is a hybrid between *D. Wardianum* and *D. lituiflorum*, the sepals white, the petals similar, tipped purple, and the lip deep crimson in the centre, a zone of white and a purple tip. Mr. O. Thomas, Chatsworth Gardens, had a plant of *Odontoglossum triumphans*, bearing a spike of fifteen large flowers. Mons. J. Heye, Ghent, sent a plant of *Cypripedium Sallieri*, a very distinct form, the lip and petals of a yellow tint, the dorsal sepal similar, but with small dark dots and a white margin. M. E. Vervae, Mont St. Amand, Ghent, showed plants of *Oncidium fuscum*, *Odontoglossum Pescatorei Vervaeianum*, white, with a few large crimson spots on sepals, petals, and lip; *Odontoglossum mulus*, with a fine spike of flowers, and a curious unnamed *Pleurothallis*, bearing drooping spikes of brown-striped flowers larger than they are usually seen in this genus (vote of thanks). Messrs. J. R. Pearson & Son, Cheshunt, had plants of distinct and pretty varieties of *Dendrobiums Wardianum* and *nobile*, for which votes of thanks were accorded. Mr. E. Hill, gardener to Lord Rothschild, Tring Park, had a plant of the hybrid *Laelia flammea*, with large deep orange-coloured flowers, the lip tipped with bright red (vote of thanks). From the same garden came a plant of *Aerides cylindrica* on a block in a pot, very healthy, and bearing two or three white flowers (cultural commendation). Comte Oswald de Kerchove, Ghent, exhibited a flower of *Lycaste Skinneri alba*, very large and pure white (vote of thanks), Messrs. J. Laing & Co. and B. S. Williams showing plants of *Cattleya Lawrenceana*. Messrs. Sander & Co. showed flowers of *Oclogyne cristata maxima* for comparison with the Chatsworth variety. De B. Crawshaw, Esq., Rosefield, Sevenoaks, exhibited plants of *Odontoglossums crispum*, *hystrix*, and *Ruckerianum*, *Cattleyas Trianae* *Crawshawana* and *Rosa*.

Miscellaneous.—Messrs. J. Laing & Co. had a remarkably strong plant of *Imantophyllum robustum* Mrs. Laing, bearing four trusses of fifteen flowers each, the latter deep orange and very large, with rounded petals (cultural commendation). Mr. R. Dean, Ealing, showed three Primroses—*Beatrice*, *Kilac*; *Novelty*, hose-in-hose, purple; and *Brilliant*, deep crimson, all beautiful varieties (vote of thanks). F. W. Collinson, Esq., Rookfield, Muswell

Hill, exhibited a plant of *Chrysanthemum* Mrs. Charles Carey, a Japanese variety with flat twisted white florets, and remarkably late (vote of thanks). Mr. Bealby, The Laurels, Roehampton, showed a plant of *Carnation Madame A. Bernaix*, salmon pink flaked with scarlet, large and full. Mr. W. Wood, Eastbourne, sent a variegated *Eupatorium*; and Mr. W. Clay, Kingston, had four highly coloured varieties of *Cyclamens*. Messrs. J. Veitch & Sons had several new Hyacinths besides those certificated, comprising the following:—*Blush Perfection*, double, white with a pink tinge; *Rose Pompon*, single, pale blush, fine spike, and large bell; *The Bride*, single, pure white, large bells and spike; *Princess of Wales*, single, pink, with strongly recurving petals. Some pretty white *Crocuses* named *Mont Blanc*, and a pan of *Primula pulcherrima* were also shown.

Groups.—These have been incidentally referred to, and we can only notice them briefly. Messrs. J. Veitch & Sons, Chelsea, had a grand collection of 100 Hyacinths, representing most of the best varieties in cultivation, the spikes large and the colours varied (silver-gilt Banksian medal). Messrs. J. Cutbush & Sons, Highgate, had about 120 Hyacinths, also of many varieties and well grown (silver Banksian medal). The St. George's Nursery Company, Hanwell (Mr. H. B. Smith, Manager), exhibited a superb group of *Cyclamens*, and were awarded a silver-gilt Banksian medal and a cultural commendation for a variety named *The Major*, with massive white flowers and a crimson throat. Mr. J. James, Woodside, Farnham Royal, contributed a handsome group of his fine *Cinerarias*, the blooms large, beautifully formed, and very rich in colour (silver Banksian medal); and W. Clay, Esq., Kingston, had a fine group of *Cyclamens* (bronze Banksian medal). Silver Banksian medals were awarded to Mr. T. S. Ware, Messrs. Barr & Son, and Messrs. Collins Brothers & Gabriel for groups of Daffodils and other flowers, *Anemones* of the fulgens type being freely used. A silver Banksian medal was also awarded to T. A. S. Dorian Smith, Esq., Tresco Abbey, Scilly Isles, for a large collection of Daffodils arranged in their several sections, and all gathered out of doors.

## PLANTS CERTIFICATED.

*Hyacinth Queen of the Pinks* (J. Veitch & Sons).—A single-flowered seedling from King of the Blues, the bells large, of good form, and deep pink in the centre of the petals, lighter at the margin. Spike compact and massive.

*Hyacinth Grand Fleur* (J. Veitch & Sons).—A pretty single variety, with purplish rose flowers, a very distinct shade, the bells large and spike compact.

*Dendrobium Leechianum* (W. Thomson & Son).—A fine hybrid, raised by Mr. W. Swann when gardener to W. Leech, Esq., Fallowfield, Manchester, from seed obtained from *D. nobile* fertilised with *pollinia* from *D. aureum*. The crossing was effected in January, 1875, and in February of the following year the seedlings were first noticed, and flowers were first produced in January, 1881. The parents are the same as those of *D. Ainsworthi* and *D. splendidissimum*, but it is quite distinct from both, Messrs. Thomsons' plants being so good and the flowers so fine that a unanimous certificate was granted. The sepals and petals are white, tinged with purplish crimson, the lip over an inch in diameter, of a rich crimson hue, feathering into the pure white margin. Like *D. nobile*, it is very free, and small growths had over a dozen flowers each. An illustration of this hybrid was given in this Journal (page 233, March 23rd, 1882), with the raiser's description of its treatment.

*Dendrobium crassinode-Wardianum* (Baron Schröder).—A supposed natural hybrid, introduced with other *Dendrobiums*, and apparently intermediate between the species named both in flowers and pseudo-bulbs. The latter are 3 feet long, more slender than *D. Wardianum*, with swollen nodes, but less strongly marked than in *D. crassinode*, and the internodes are longer. In the specimen shown the pseudo-bulb had forty flowers, the petals about 1 inch in diameter and rounded, these, with the sepals, being white tipped with soft rosy crimson. The lip is broad and round, golden, with two small crimson dots at the base, a white band, and a pale rose tip. It is a charming Orchid and will probably become valuable.

*Cattleya Lawrenceana* (Baron Schröder).—This fine *Cattleya* has been shown several times without securing honours, and it seems to vary considerably, like others of the genus. The plant shown had twelve flowers, two or three on each growth, the petals  $1\frac{1}{2}$  inch in diameter, and with the sepals of a uniform purplish hue, the lip of an intensely rich crimson colour, and a white throat.

*Odontoglossum Pescatorei Vervaeianum* (M. E. Vervae, Ghent).—A beautiful variety, with well-formed flowers, white, with a few large crimson spots on the sepals, petals, and lip.

*Azalea mollis Lord Shaftesbury* (J. Cutbush & Sons).—A handsome variety, with round well-formed flowers, of a bright golden colour. Very free and useful.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair. Prof. A. H. Church drew the attention of the Committee to a new insecticide, the outcome of a long series of experiments. The preparation in question is essentially a complete and permanent emulsion, in which has been incorporated a large quantity of such oily liquids (including certain kinds of paraffin oil) as destroy the insect-pests of plants. Hitherto the rough methods in use for preparing such emulsions have failed to effect the perfect distribution of the oily matter in the wash, and, in consequence, oily drops of sensible size have spotted and injured the leaves and tender shoots of the plants. The sample exhibited contained two-thirds of its bulk of the above-named oils along with other useful ingredients. On dilution with water no separation of the oils takes place. For very tender and succulent plants half an ounce of the emulsion in a gallon of rain water forms a syringing wash, which proves fatal to green fly, red spider, brown scale, and even mealybug, without inflicting any injury on the flowers or foliage of the plants to which it is applied. The proportion may be increased in the case of more robust plants—even 4 ozs. to 1 gallon may in some cases be used, though much weaker solutions are in the great majority of cases perfectly effective. The plants if at all delicate should be syringed with fresh water two hours after the insecticide has been applied. By appropriate chemical methods various substances may be introduced into the emulsion in order to meet special requirements of gardeners and Hop-growers. For instance, sulphur, in a free state and yet in a perfectly soluble form, has been added to some of the preparations, and proves to be an efficient pre-



ventive and cure of mildew in Roses. Mr. Church added that he had not hesitated to bring this insecticide before the Committee, since he had no interest, save a scientific one, in the invention.

Mr. Elwes drew attention to the importance of the discovery in its application to the Tea plant, which suffers from blight in the dry season; and on the question being raised as to the paraffin affecting the tea, Prof. Church replied that it had been used in greenhouses on scented plants, as Pelargoniums, &c., and though the smell was perceptible for forty-eight hours it is not permanent.

*Pleurothallus* sp.?—A curious species with striped petals was exhibited by M. E. Vervaeet from Mount St. Amand, Ghent. It was sent to Kew for identification.

*Scoliapus Bigelowi*.—The interesting Californian species was exhibited, the flowers being of rather paler hue than usual.

*Malformed Hawthorn*.—Dr. M. T. Masters exhibited branches which had been arrested in growth and formed short stunted spurs. Mr. MacLachlan remarked that a quickset hedge similarly injured was nearly destroyed. It was evidently due to insect agency.

*Crocuses and Sparrows*.—Mr. MacLachlan alluded to the periodical injury these birds do to Crocuses by biting off the contracted portion of the perianth tube. As the nectar is secreted there, it was probably due to the discovery of this fact by the birds. Mr. Henslow observed that he had not experienced the fact, though both Crocuses and sparrows were abundant in his garden.

*Odontoglossum Rossi*.—Mr. O'Brien exhibited sprays of different varieties of this species, one having white petals and the other mauve.

*Trimorphism in Narcissus triandrus*.—Mr. C. Wolley Dod exhibited specimens showing three different lengths in the pistils—a short, medium, and long-styled form, as in *Lythrum Salicaria*, the short-styled form occurring 20 per cent. of flowers examined; the mid-styled form 10 per cent., while the more usual condition is to be long-styled. In the var. N. t. pulchellus the style is always longer than the stamens, and the tube of the perianth is also longer than usual. The short-styled form was received from Oporto. In all cases the flowers appeared to be protandrous.

*N. Henriquesi*.—He also showed a specimen of this plant with no tube to the perianth, probably due to the arrest of the receptacular tube. In reply to Mr. Elwes, he remarked that the bulbs were scarcely hardy, and die if the plants be allowed to seed; and that they must therefore be raised from seed, when they will flower in the second year.

*Camellias and Frost*.—Hon. and Rev. J. T. Boscawen exhibited single Camellias which had lately blossomed in the open, and leafy branches, showing how the leaves of 1885 were perfectly green and untouched by the frost, while those of 1884 and 1883 were browned to various degrees; but those of 1882 on the same branch were perfectly green. The branch was from a bush that had never received direct sunlight.

## CHRYSANTHEMUMS.

### TRAINED SPECIMEN PLANTS.

NEVER before were the Chrysanthemums so well or widely cultivated as at the present time, and it would be almost impossible to write anything that is really new in their culture, yet I find many amateurs need information, hence I give a few brief remarks on a system I have practised with very good results.

Supposing that large trained plants are wanted for exhibition or home decoration, I advise those who have plants that were last year grown for specimen blooms—i.e., with an upright stem—to cut them down to within 6 inches of the surface, and place them where the temperature did not fall below 50° at night, and keep them syringed once or twice a day until they break into side shoots half an inch long. Then they require to be shaken out of their pots, the roots shortened, any suckers removed and placed into well drained 6-inch pots. Employ a mixture of light sandy soil composed of two parts loam, or the top spit of a pasture, to one of well-decayed manure, one part half-decayed leaf soil, and sufficient coarse sand to make the whole porous. They would then make rapid growth, and when the side shoots are a few inches long take out the points and peg out the shoots like *Verbenas* are treated; but this must be done very carefully or the shoots are liable to break off. At the end of March transfer them to a cold frame, paying particular attention to watering, and admitting air at all favourable times.

At the end of April they will require to be shifted into 8-inch pots, keeping the frame rather close for a few days, when air should again be admitted freely yet gradually, hardening them sufficiently to be placed out of doors by the end of May or the beginning of June. The plants should have the points stopped, so that they will form many shoots; but never pinch and pot at the same time, or they will break weakly. They would also require a few sticks to secure the plants against damage by winds.

About the first week in June they need the final shift into 10 or 11-inch pots, the drainage being carefully placed with small crocks to the depth of 1½ inch, and over this a layer of half-decayed turf, grass side downwards, which prevents the soil getting down amongst the crocks, and over this give a sprinkling of soot. The compost for this potting, also the shifting into the 8-inch pots before named, would be composed of two parts and a half good loam, one part decayed manure, and little half-decayed leaf soil and coarse sand. To this I would add a 6-inch potful of Clay's fertiliser, and the same quantity of soot to each barrow of the soil, the whole to be well mixed. Pot the plants very firmly, ramming the soil with a blunt stick as the work proceeds, leaving about 1½ inch from the rims for a future top-dressing. Place the plants on a thick bed of cinder ashes in some good open position, yet sufficiently screened from high winds during the season of growth. The final pinching should not be later than the last week in June; and if they have been regularly pinched they would now be forming from sixty to eighty shoots on each plant, each to

have one good flower. The watering will require regular attention, and weak liquid manure may be given all through August two or three times a week. Sheep droppings tied in an old sack and soaked in a tub of soft water form a good liquid. The plants are also benefited by syringing with very weak soot water made in the same way as the above every evening if very hot weather should intervene. Let the shoots run in a trailing manner amongst the sticks, and keep them tied in places, so as to protect them against any sudden gales.

At the beginning of September the crown buds appear—i.e., a bud would show with about three growths nestling round it. If this bud is plump and not damaged, or in any other way deformed, the growths round it can be removed, leaving the bud only for a future bloom on each. A similar bud to the one described appears earlier in the season; that is called a July bud, but that is useless, and better be promptly removed and let all the growths remain. As soon as the bud is fairly set top-dress the soil with half-decayed sheep droppings two parts, with one part loam, and a sprinkling of Clay's fertiliser, pressed firmly so as to leave sufficient space to hold the water when using it. From the 1st to the 10th of October the plants requiring housing, the most suitable place would be a good airy greenhouse, Peach house, or vinery; giving them all the air possible for a few days, and never apply fire heat unless to expel damp or frost. The plants would require a sprinkling of Clay's or Standen's manures about the middle of October, but soon as the flowers begin to show colour use nothing but clear soft water. By the end of October they would require their training; neat sticks about 2 feet long and evenly placed, the outer ones pitching on wards so as to form heads 3 feet or more through, according to the size of the plants, bringing each shoot round, so that the blooms may come to the right height. Should mildew appear well dust with flowers of sulphur; and while the blooms are expanding keep a free circulation of air amongst them upon all favourable occasions.

From the foregoing I would sum up the chief points in this way. Keep the plants growing as fast as possible, stopping the shoots at every third or fourth leaf, never allowing them to suffer for want of water; in fact, carrying out the full details herein described, and good results may be anticipated.

The following varieties I have found good for this mode of training:—Mrs. Rundle, Geo. Glenny, Mrs. Dixon, White and Pink Venus, Lord Derby, Princess Teck, Hero Stoke Newington, Lady Hardinge, Mrs. Shipman, Prince of Wales, and Mrs. Haliburton.—W. A. WALTER, *Lillingstone House*.



AT a general meeting of the ROYAL HORTICULTURAL SOCIETY, held last Tuesday, Colonel R. Trevor Clarke in the chair, the following candidates were unanimously elected Fellows—viz, Sir Philip Currie, K.C.B., H. R. Darlington, George Hansen, Mrs. R. L. Hatton, Henry Kruse Frank Miles, Miss D. Wemyss.

— THE attention of the Council of the Royal Horticultural Society having been called to the fact that in the Report of the Orchid Conference the name of MESSRS. W. THOMSON & SON of Clovenfords, N.B., as exhibitors of cut specimens of Orchids has inadvertently been omitted, the Council express their regret at this omission.

— EVERY year the display of AMARYLLISES AT CHELSEA appears to increase in magnitude, diversity, and richness. Messrs. Veitch and Sons have for years past devoted special attention to this gorgeous race of plants, and their annual exhibitions of them show the wonderful progress that has been made in the improvement of the flowers. The central bed in a spacious span-roofed house is now occupied with plants plunged closely together that are throwing up some 1500 flower stems. Many flowers are open, including some beautiful new varieties, and others are daily expanding. The Exhibition may be said to have fairly commenced, and for the next fortnight will form one of the most brilliant floral spectacles of the year. Visitors to the nursery will also enjoy a glance at the cool Orchids, of which hundreds are now flowering in charming contrast with the more massive and gorgeous Amaryllids. A series of exhibitions will be arranged by Messrs. Veitch during the season, and their nurseries are open free to visitors during the whole of each week day.

— ON Friday, the 26th inst., Mr. B. S. Williams will open an EXHIBITION OF SPRING FLOWERS AND ORCHIDS IN THE VICTORIA AND PARADISE NURSERY, UPPER HOLLOWAY, and a very beautiful display will be provided. There are over 200 well-grown Hyacinths of the best varieties, with Tulips, Narcissi, Lilies of the Valley, and similar forced plants. The superb plants of *Imantophyllums* will be employed in



groping with the other plants, and Orchids will include some fine Cattleyas, of which large numbers are advancing, Odontoglossums, and many valuable varieties.

— WE have been favoured with an advance copy of the first portion of the Earl of Onslow's work, "LANDLORDS AND ALLOTMENTS," published by Messrs. Longmans, Green & Co. We can only say now that it is a timely and useful publication, eminently worthy of perusal by all who are interested in the question on which it treats. The diligence of the author is very apparent, and he merits the success he has undoubtedly achieved in collecting a great amount of valuable information on an important subject that is now receiving a large share of public attention.

— WE have received a copy of the report and balance sheet of the HULL CHRYSANTHEMUM SOCIETY, which we are glad to observe is in a flourishing state. Nearly 7000 visitors attended the show last year, and £112 10s. was awarded in prizes. The balance at the bankers has been raised from £77 13s. 6d. last year to £173 1s. 9d. at the present time—an increase that justifies the policy that was pursued, and also the re-election of George Bohn, Esq., Chairman, with Messrs. Charles Judge and W. W. Cogan as Honorary Treasurers and R. Falconer Jameson and W. Hawksworth as Secretaries of the Society, which is recorded. The next show will be held on November 18th, and schedules are in preparation.

— MR. W. DANIELS, The Gardens, Hall Cross, Mirfield, sends us a flower of EUCHARIS GRANDIFLORA WITH TEN PETALS, and remarks:—"We grow a good many Eucharises, but never had a flower like the one enclosed. The bulb is planted out amongst others; the spike has seven other flowers to open." Eucharis flowers occasionally come with a greater number of petals than usual, and the instances have been rather numerous this season. Many cultivated plants vary in this way, approaching the condition of double flowers.

— A CHRYSANTHEMUM SOCIETY has been formed at Wells, Somerset, and the first exhibition will be held in the Town Hall on November 24th, 1886. For a first attempt the prizes are fairly liberal, and there is every prospect of the Society being well supported in the neighbourhood. Mr. A. G. Andrews is the Honorary Secretary, and several practical gardeners are on the Committee.

— ANY person in quest of a lovely hardy conservatory or greenhouse climber can readily find one in CLEMATIS INDIVISA LOBATA, which is so easy of cultivation. At the present time there is in the glass corridor of the Birmingham Botanical Gardens a fine plant loaded with its beautiful white star-shaped blossoms, with plenty of buds to open, and it is not only so valuable as a climbing decorative plant, but the flowers are so lovely and valuable for working up into sprays for ladies' shoulder-knots as well as for wreaths and crosses, and much can be done by the use of branches of flowers in decorations.

— THE 103rd exhibition of the products of horticulture of the ROYAL FLORAL SOCIETY OF BRUSSELS will be held in that city on April 25th, 26th, and 27th of the present year. The schedule comprises 134 classes, and about forty gold medals are provided, with a great number of silver-gilt and silver medals to be competed for on the occasion. M. Lubbers, 26, Rue de Berger, is the Secretary of the Society.

— "J. W.," Cookbridge Tower Gardens, Leeds, writes:—"On page 218 in Journal for last week I notice remarks on a CURIOUS CINERARIA. Enclosed you will find several similar blooms. All the blooms on the plant are alike, and I only have this one out of 150 plants. I cannot give any reason why the one should be distinct from the rest." An Uxbridge correspondent also sends examples of a similar freak.

— THE NEWCASTLE-UPON-TYNE BOTANICAL AND HORTICULTURAL SOCIETY will hold their Show this year on the following dates—Wednesday and Thursday, April 7th and 8th, and Wednesday, Thursday, and Friday, July 21st, 22nd, and 23rd. Numerous classes are provided at each Show, and the prizes will be of the usual liberal character. The Secretary is Mr. T. J. Gillespie.

— GARDENING APPOINTMENT.—Mr. George Cook, foreman Eridge Castle Gardens, has been appointed gardener to Mrs. Wilson, Rauceby Hall, Sleaford, Lincolnshire.

— MR. BARDNEY writes:—"Since the winter has passed away we have had warm weather and bright sunshine in the Liverpool district, with occasional showers. Sunday was almost like summer, and Narcissus and

the buds of fruit and other trees could almost be seen growing under its influence. Crocuses have sprung into flower all at once, for on Saturday only odd ones were visible, but the following afternoon they were a glorious show. If the present weather continues, in two or three days our light soil will be in workable condition, planting and seed-sowing will be pushed forward as rapidly as possible."

— IN the years 1837, 1838, and 1839 a very interesting work, "The Floral Cabinet," emanated from the Botanical Gardens, Birmingham, edited by Mr. G. B. Knowles, then Professor of Botany in the Birmingham Royal School of Medicine, and in the volume for 1837 is a coloured plate of BEGONIA OCTOPETALA, which is described as a perennial. Root tuberous. Leaves large, kidney shaped, measuring 12 inches across and 6 inches in depth. Petals four (in the male flowers occasionally five), some of the flowers being 3 inches in diameter, and first cultivated in the Paris Garden from seeds sent from South America about the year 1778, by Mr. Joseph Dombey, the celebrated botanist and traveller. A plant is in the collection at the Birmingham Botanical Gardens, and Mr. Latham has not yet flowered it, although he has had it for four years, but he intends blooming it if possible this summer. It is, however, very rare now, but the size of the flowers is somewhat remarkable in a Tuberous Begonia of fifty years since.

— A LEEDS correspondent sends us some flower-heads of a remarkably fine WHITE CINERARIA, one of the best varieties that we have seen. The florets are broad, of great substance, and rounded in form, the outline of the bloom being sufficiently good to satisfy a florist, while the contrast of the bright purple centre is very striking. Our correspondent states that he has fifty florets from offsets, which he finds very useful for decoration, one plant in a 6-inch pot having eighty blooms. In some of the best strains it is strange that, though so many rich and bright colours are represented, white is scarce, or of a dull dirty hue.

— THE usual monthly meeting of the ROYAL METEOROLOGICAL SOCIETY was held on Wednesday evening, the 17th inst., at the Institution of Civil Engineers, Mr. W. Ellis, F.R.A.S., President, in the chair. Mr. W. E. Addison, Mr. A. W. Claydon, M.A., F.G.S., Mr. T. B. Moody, R.N., and Dr. W. Schlich were balloted for and duly elected Fellows of the Society. The President gave an historical sketch of the barometer. After remarking on the accidental nature of the discovery of the instrument in the year 1643, in its best form, in ignorance for some time of its value for purposes of meteorological inquiry, he gave a brief account of many early kinds of barometers, the first endeavour being in consequence of difficulties experienced with the ordinary mercurial form to enlarge the scale of variation, attempts which, in general, introduced other errors and inconveniences. The desire to experiment on elevated positions induced the construction of an early form of portable barometer, one such with cistern completely closed leaving the air to communicate through the pores of the wood having been made above 200 years ago. The President further described various points in the arrangement of the Ramsden, Gay Lussac, and other barometers, including also mention of some modern patterns of long range barometers, standard barometers, and such barometers as are more commonly used. The practice of driving out air from the mercury by heating or boiling appears to have been in use early in the last century. Engraved plates indicating the weather to be expected with different heights of the mercury have been longer used, at least as early as 1688. As regards correction for temperature, De Luc in the last century adopted a temperature corresponding to 54.5° Fahr. as that to which to make reduction, because corresponding nearly to the average of observations, such reduction being now made to the natural zero, 32° F. Reference was made to the employment of water (as in the well-known Royal Society barometer) and other liquids instead of mercury; also to various kinds of floating and other barometers not at all or not entirely mercurial, and to metallic barometers. The President concluded his account with a sketch of the history of recording barometers or barographs, including a notice of the application of photography and electricity to recording purposes. At the conclusion of the President's address the meeting was adjourned to afford the Fellows and their friends an opportunity of inspecting the valuable and interesting exhibition of barometers.

#### ODONTOGLOSSUMS AND CATTLEYAS.

THIS year we have kept our Odontoglossum house several degrees warmer than we have ever done before, and the roots of the plants are in capital condition, better than has been the case in previous years. Our thermometer is in the centre of the house, and we have been in the habit



of preventing the temperature falling below 45°. Under these conditions the plants did well, especially at the warmest end of the house, which would be kept about 50°, but they did not succeed so well at the coolest end, which must have fallen to 40°. Last year I was induced to try the cool treatment for these plants, and in consequence lowered the temperature 5°—that is, to 40° during severe weather; but when mild it stood 45° or more, no fire heat being needed to maintain this temperature. This gave the low temperature system a fair trial, and in our case the plants went further back in three months than they made progress in one year. *O. cirrhosum* was the first to resent this treatment, and *Ada aurantiaca*; in fact plants of the latter were lost, while it is doubtful if those of the former can be thoroughly recruited in two years. We had previously grown these in the house during the winter, in which we now grow *Cattleyas*, and wonderfully well they had done. They had developed pseudo-bulbs of a large size, and the increased size of the plants had been wonderful. *O. triumphans* suffered least, and then *O. Pescatorei*. *O. Alexandræ* suffered considerably, and the plants are not so good as they were before being subjected to the cool treatment. During the past year they have made wonderful progress, and they never were in better condition at their roots.

This winter we arranged three thermometers in the house, one at each end and one in the middle, and have found that there is 8° difference between the warmest and coldest end. The one at the coolest end has not been allowed to fall below 45°, the one at the warmest end has stood at 53°. This has been during cold nights, or when the thermometer outside has been 35° and below. On mild occasions, when the temperature given could have been maintained without the use of fire heat, this was not attempted, but the pipes were kept gently warm whatever the temperature of the house might be. The plants by this treatment have done well, and in future the low temperature system will not be practised. My advice to all cultivators anxious to increase the size of their plants and the number of their pseudo-bulbs, is not to have the plants in a lower temperature than 45° to 55°, the first at the coolest end of the house during severe weather. To do *Ada aurantiaca* and *O. cirrhosum* well they should not be in a lower temperature at any time than 55° at night.

I have recently seen some *Cattleyas* that have been grown on the cool system that has found favour in several quarters during the past few years. Some of these plants have passed into the garden of a friend, and what is their condition by the side of his plants that have had warm treatment? These have been grown in a general plant stove, and have fine stout pseudo-bulbs with large bold foliage; they are in the best condition, and very healthy. The plants grown in a cool house have a yellow sickly cast, as if they have been starved, as no doubt they have. My friend has many fine pieces of *Cattleyas*, and intends erecting a house in which to cultivate them by themselves, and therefore is huying a few to assist in filling the structure when ready for them, and he says "They shall not have a lower temperature than 60°, and that during cold weather." "Will you give them much air?" was the next question; and the answer was "No, they will be ventilated on the same principle as my stove; this structure has had no air admitted through the ventilators since October last, and will get none for some weeks to come." This exactly coincides with my own experience of *Cattleyas*, for I grow them moderately warm, never having subjected the plants to a lower temperature than 60° to 65°, the former being the temperature given for cold weather, except perhaps on a solitary occasion when a night has proved very windy and cold and the temperature has been lowered rather than overheat the pipes. The whole of my plants were imported pieces obtained during the past three years, for I had but two or three plants previous to this time. They produced sheaths the first year, but they were not allowed to bloom; the second season they made good growth and flowered freely. This season again they are flowering well, and others have plenty of sheaths. The pseudo-bulbs of those imported three years ago are decidedly better, being larger and with bolder foliage than they possessed in their native homes.

I am of opinion that unless *Cattleyas* make finer growth under artificial treatment than in their native habitat they are not receiving the treatment they desire. It is unnatural for them to have a yellow sickly appearance, and this will not be the case if the plants are carefully watered during the winter and given the heat advised above. Carelessness in watering is the ruin of more *Cattleyas* than any other cause. If over-watered during the winter or their resting period they will fail to do satisfactorily.—S. W. D.

#### ACANTHEPHIPIUM BICOLOR.

AMONGST the floral treasures found by Blume was an Orchid discovered in the woods of Mount Salak, Java, and which proved to be so distinct from any then known, that a genus was founded upon it, and the plant was named *Acanthephippium javanicum*. The characters upon which that botanist relied were sufficiently important to deserve generic rank, and though there have been many alterations in the nomenclature of Orchids, this has been retained and was adopted by the late Mr. G. Bentham in his review of the family. Botanically the genus is nearly related to *Bletia*, and with that the author last named placed it in the sub-tribe of the *Epidendræ*, *Bletieæ*. In appearance, however, the few species known are but little like the *Bletias*, the pseudo-bulbs being stout, conical, covered with the sheathy bases of leaves, and bearing at the summit

broad lanceolate leaves with strongly marked ribs. The young shoots rise from the base of the old pseudo-bulbs, and with them are produced the few-flowered racemes of somewhat tubular flowers, the sepals and petals closely surrounding the lip and column. The colours are curious—not so bright as many Orchids now in cultivation, but they are attractive, and a well-grown plant like that shown in the woodcut is worth a place in a collection.

*A. javanicum*, already noted, was the first known, but does not seem to have been introduced until 1844 or a little before that time, as in that year a plant flowered in Loddiges' nursery, and was figured in the "Botanical Register," t. 47, 1846. It subsequently flowered at Kew, and was figured in the "Botanical Magazine" in 1850. The varieties represented in these two plates differ in colouring considerably; the earlier one has yellowish flowers striped with purple outside the inner surface and the lips of sepals and petals being of a purplish lilac colour; in the other the yellow is much brighter, and the streaks are reddish, with a tinge of purple. The species is readily distinguished by the lip being deeply three-lobed, the centre lobe contracted in the centre, and toothed.

*A. bicolor*, of which a plant is represented in fig. 44, though not discovered until some time after *A. javanicum*, was first introduced to this country, as it was figured in the "Botanical Register" in 1835, t. 1730. It was found in Ceylon by Mr. Watson, then superintendent of the Government Garden at Peradenia, and by him was sent to the London Horticultural Society. The flowers are yellow, the petals streaked with red on the inner surface, and the sepals deeply tipped with a darker shade of the same colour. The engraving was prepared from a plant shown by Sir Trevor Lawrence, Bart., M.P., at the Orchid Conference in May last year.

*A. striatum* is another species that has been described by Lindley and Mr. Bateman as possessing "French white" flowers, and another has been described under the name of *A. sylhetense* with "white scentless flowers," but these are little known, and if they are in cultivation they are confined to collections of rarities. *A. bicolor* succeeds well in a pot with peat and light turfy loam in an intermediate or *Cattleya* house, giving plenty of water during growth, and having a well-marked season of rest.—L. C.

#### HORTICULTURAL SHOWS.

##### LIVERPOOL.

THE fourth Spring Show of this Society was held in St. George's Hall, on Thursday, March 18th. The Exhibition on the whole was not quite equal to those of previous years. The weather was most unfavourable, and deterred many competitors from staging their plants. The number of entries were never so numerous, and it was anticipated that the Exhibition would prove a remarkable one.

*Stove and Greenhouse Plants.*—The large Crotons and Palms that usually adorn the Exhibition from Wyncote Gardens were missed this year, but there were some remarkably fine plants. In the class for six plants, three flowering and three foliage, three competitors staged. Mr. A. Crosbie, gardener to B. Hall, Esq., was first with a grand plant of *Croton angustifolius* about 5 feet through and well coloured; *Latania borbonica*, and a good *Croton Mooreanus*; a large plant of *Rhododendron Gibsoni* being noticeable. Mr. J. Jellico, gardener to F. H. Gossage, Esq., Camp Hill, Woolton, was a close second; and Mr. A. R. Cox, gardener to W. H. Watts, Esq., Elm Hall, Wavertree, was third, and staged *Cattleya intermedia* with about sixteen flowers. For one greenhouse plant Mr. G. Rhodes, gardener to Mrs. Horsfall, Aigburth, was placed first with a large well-flowered example of *Imantophyllum miniatum*. Mr. J. Lowndes, gardener to S. S. Parker, Esq., second with *Chorozeia cordatum splendens* well grown and flowered. Mr. C. Copple, gardener to T. S. Rogerson, Esq., St. Michael's Hamlet, third, with a similar plant to the first named, but not quite so well flowered. For one stove plant Mr. A. R. Cox took the lead with *Phajus grandifolius* with five or six large spikes. Mr. A. Crosbie followed with the same variety. Mr. H. Went, Mere House, Newton-le-Willows, secured the remaining prize with a *Gardenia*. The best single foliage plant was from Mr. A. Crosbie, a large specimen of *Asparagus plumosus*; Mr. A. R. Cox, being second with *Dracæna Baptisti*.

*Groups.*—In the class for a group of miscellaneous plants arranged for effect to occupy a space of 50 square feet in semicircular form, two competitors entered, and the groups were better than they have been before at the spring shows. Mr. A. R. Cox was first with a tasteful arrangement, the groundwork being formed with Ferns, Orchids, Azaleas, Cinerarias, Primulas, and Narcissus, with highly coloured Crotons, *Dracænas*, *Aralias*, and Palms rising above them, edged with *Panicum variegatum* and dwarf red Tulips. Mr. J. Jellico, Camp Hill Gardens, secured second honours with a very pretty but not such a light arrangement.

*Azaleas.*—These were fairly well represented, and the premier plants in the open class were well grown specimens. Mr. W. Wilson, gardener to H. Cunningham, Esq., Gorsey Cop, Gateacre, was the most successful with *Criterion*, *Charmer*, *Striatum*, *Flag of Truce*, and *phœnicea*. Mr. A. Crosbie was second, but these plants were not fully out. In the amateurs' class for four plants in 8-inch pots Mr. P. Barber was placed first with healthy well-flowered plants. Mr. T. Gowan was second with rather smaller plants, and Mr. A. Crosbie third. With one plant Mr. J. Lowndes was first with a very large profusely flowered plant of *Virgin Queen*. Mr. J. Jellico was second, having also a fine plant of *Fielder's White*.



The Rhododendrons staged were large and well bloomed. Mr. W. Bustard was awarded the first prize for large plants of Vesuvius, The Queen, Victoria, and Mrs. Bradshaw. For one, Messrs. W. Bustard and J. Lowndes were the winners in the order named. For one greenhouse variety Mr. G. Rhodes was first with a grand specimen of R. Gibsoni.

**Miscellaneous Plants.**—With six forced plants Mr. W. Bustard was well ahead, showing *Deutzia gracilis* 3 feet through, *Azalea mollis* very fine, *Maréchal Niel* Rose, and a nearly white Ghent *Azalea*. Roses were only fair. For four plants Mr. A. R. Cox was first with *Niphetos*, *Homère*, *Souvenir d'Elise*, and *Reine Marie Henriette*. Mr. J. Jellico was second, his best plants being *Général Jacqueminot* and *Isabella Sprunt*. For one plant Mr. J. Agnew was first with a large well-bloomed plant of *Comtesse de Sembie*. *Primulas* were not so good as are generally exhibited. *Cinerarias* were better than they have generally been. *Lily of the Valley* was remarkably well shown, and the competition for the three prizes offered for six plants in pots was very keen. *Cyclamens* were not largely shown, but those staged in the class for six plants were remarkably good. Table plants were staged in the usual style, the plants being small, neat, and light. Ferns were in splendid condition although not numerous. Mr. T. Gowan's plants being extremely fine. Palms and Cycads were not quite so largely shown as usual, but Mr. Crosbie had some fine specimens.

**Hyacinths in Pots.**—These were not quite up to the same standard as in previous years, although some fine well-developed spikes were shown. Four collections of eighteen distinct varieties were staged. Mr. C. Wearing, gardener to Mrs. Aikin, Princess Park, was well to the front with well grown plants, some of the best being *Von Schiller*, *King of the Blues*, *Gigantea*, *Grandeur à Merveille*, *Czar Peter*, *Vuurbaak*, very fine; *Mont Blanc*, *Lord Derby*, *Baron Van Tuyll*, *Fabiola*, *Baroness Van Tuyll*, *Koh-i-noor*, *Alba Maxima*, *Marie*, *Blondin*, and *Grand Maître*. Mr. J. Kelly, gardener to R. Singlehurst, Esq., Aigburth, second, this collection having very good spikes, but the foliage was slightly drawn. Mr. E. Green, The Hollies, Mossley Hill, third. For twelve distinct varieties, Mr. J. V. Thompson, gardener to W. P. Sinclair, Esq., Princess Park, was first, and staged good examples of *King of the Blues*, *Princess Clotilda*, *Grand Maître*, *Blondin*, *Ida*, very fine; *La Franchise*, *Lord Derby*, *Koh-i-noor*, *La Grandesse*, *Grand Lilas*, *Macaulay*, and *Alba Maxima*. Mr. J. Bounds, gardener to A. S. Jones, Esq., Oaklands, Aigburth, second; and W. Kneale, gardener to Captain Gaskell, High Cliffe Lodge, third; four collections being staged. For six plants the fortunate competitors were Messrs. J. V. Thompson, C. Copple, and C. Wearing. In the corresponding class for six pots, three bulbs in each pot, some grand examples of culture were staged. Mr. J. Jellico took the lead with some very fine spikes of *Marie*, *Baroness Van Tuyll*, *Grand Lilas*, *Robert Steiger*, and *Baron Van Tuyll*; Mr. T. Stephenson, gardener to R. Cornelius, Esq., Waterloo, second; and Mr. Peter Barber, third.

**Tulips.**—Mr. Kneale took the foremost position in the class for two pots of single varieties, not less than six distinct varieties. This collection comprised good examples of *Proserpine*, *Keyzers Kroon*, *Alba Regalis*, *Couleur Cardinal*, and *Joost van Vondel*. Mr. A. Collins was placed second, having very fine *Fabiola*, *Chrysolora*, *Joost van Vondel*; Mr. J. Kelly being third with fully expanded examples. For six pots of single varieties Mr. C. Wearing was placed first, and staged *Vermilion Brilliant*, *White Pottebakker*, *Joost van Vondel*, *Wouverman*, *Standard Royal*, and *Chrysolora*. Second Mr. J. Lowndes, and third Mr. C. Copple. For six pots of doubles Mr. E. Green was first, Mr. Copple second, and Mr. J. Lowndes third.

*Narcissus* were good, and the prizes offered were well contested; for six pots, not less than three varieties, Mr. J. V. Thompson was first, having *Apollo*, *Sir Walter Scott*, and *La Parfaite* good. Mr. C. Wearing was second and Mr. J. Jellico third, eight or nine collections being staged.

The lateness of the season enabled *Crocuses* to be staged in fine condition. The competition in the class provided for six pots was remarkably good. The prizewinners were Messrs. J. V. Thomson, J. Bounds, and P. Barber, in the order named.

**Orchids.**—These were not staged in large numbers, but the exhibits throughout were of good quality. In the class for four plants Mr. T. Worth, gardener to E. Harvey, Esq., Riversdale, Aigburth, was first, followed by Mr. E. Green, Mr. W. Moss, gardener to W. Holland, Esq., Mossley Hill, and Mr. A. Smith, gardener to D. de Yborrondo, Esq., Sefton Park; the two last being equal thirds. The premier collection contained *Cattleya Trianae* *Osmani*, with five highly coloured flowers. A basket of *Dendrobium crassinode*, *Cymbidium Lowianum* with two fine spikes, and a remarkably fine variety of *Dendrobium Falconeri giganteum* with thirteen highly coloured flowers nearly 3 inches in diameter. The second collection contained a good *Vanda tricolor* and *Cattleya Trianae*. For one plant Mr. T. Worth again took the lead with *Dendrobium crassinode album*, a remarkably fine variety. The plant had one very strong pseudo-bulb well flowered, the colour being of the purest white, and the flowers large, being equal to those of good varieties of *D. Wardianum*. Mr. G. Rhodes was second with a large pan of *Coclogyne cristata*.

**Bouquets and Cut Flowers** on the whole were very good, the flowers being choice and tastefully arranged, and their size moderate. Mr. A. Crosbie took the lead in the open class with an arrangement of *Eucharis*, *Dendrobiums*, *Lily of the Valley*, *Spiræa*, *White Lilac*, and *Erica melanthera* towards the outer edge. The principal colour was provided by *Dendrobium nobile* and *Euphorbia jacquiniæflora*. Messrs. S. Martin & Co., florists, Hope Street, Liverpool, were the second. Mr. G. Downes, Lodge Lane, obtained the remaining prize. In the corresponding class for amateurs the same exhibitor was again first with a very similar bouquet to the one staged in the previous class; the ground being nearly all white with a few flowers of *Sophronitis grandiflora* and scarlet *Bonvardia*.

Cut flowers were bright, the prizes being taken by Messrs. A. R. Cox, A. Collins, gardener to S. Smith, Esq., M.P., Princess Park; G. Rhodes; Mr. G. Park, gardener to R. A. Farington, Esq., Wigan.

**GRAPES.**—Though not shown in large numbers the competition for the prizes offered for two bunches was good, as seven or eight exhibitors staged. The examples throughout were most creditable considering the season. Mr. W. Hannagan, gardener to R. N. Naylor, Esq., Hooton Hall, was placed first with *Alicante*, Mr. T. Elsworth, gardener to R. A. Gladstone, Esq., Court Hey, second with larger bunches and plumper fruit, and Mr. G. Middleton third with *Muscat of Alexandria*. The last exhibit deserves

special notice, for the examples staged were of perfect colour and had been kept remarkably well.

**MISCELLANEOUS EXHIBITS.**—These were perhaps more numerous than usual, and contributed in a large degree to the beauty of the Exhibition. Messrs. J. Dickson & Sons, Chester, had a collection of border *Narcissus*, Alpine, and herbaceous plants in flower, for which a first-class certificate was awarded. Messrs. R. P. Ker & Sons received the same award for a splendid bank of *Azaleas* in 5 and 6-inch pots. Messrs. Outbush & Sons, Highgate, London, contributed a large bank of *Cyclamen* very fine, *Azaleas*, *Oranges* in small pots, Palms, and a collection of *Hyacinths*. Amongst the last were the finest spikes in the Exhibition, the bells being larger than was the case in other exhibits. Most of the well-known varieties were good, but pink *Baroness Van Tuyll* deserves special note. Messrs. Fisher, Son, & Sibray, Handsworth Nurseries, Sheffield, staged boxes of cut blooms of greenhouse *Rhododendrons* and a number of fine plants in pots covered with bloom. The plants in pots were 3 feet through them, well furnished and flowered. Mr. W. Nicholson, gardener to A. M. Smith, Esq., Raby, staged a case of skeleton leaves that was highly commended. A first-class certificate was awarded to T. Davies & Co. for a collection of *Hyacinths*, *Tulips*, and *Lily of the Valley*. The Horticultural Company (John Cowan), Garston, also contributed largely to the Exhibition by having some hundreds of *Hyacinths*, *Tulips*, *Narcissus*, *Azaleas*, *Spiræas*, Ferns, and Orchids. Amongst the last *Cattleya Percivaliana* and *Odontoglossum Andersoni* were conspicuous.

The arrangement of this fine Exhibition was all that could be desired, and everything was carried out in a satisfactory manner; great credit being due to the Committee of Management and the able Secretary, Mr. E. Bridge.

#### PRESTON AND FULWOOD SHOW.

This Society held its eighth annual spring Show in the new Public Hall, Preston, on the 17th and 18th inst. The schedule comprised eighty-three classes divided into four divisions—namely, five open for nurserymen and florists, sixty-four for gentlemen's gardeners and amateurs, one for amateurs not possessing more than 500 feet of glass, and thirteen for cottagers' productions. Some idea of the extent of the Exhibition may be gained when it is stated that the whole of these classes were represented with the exception of two. The plants are all staged on the evening previous to the Exhibition, so that the Judges can commence their duties the following morning, which gives ample time without being hurried in. But the Committee would do well to have the cut flowers arranged on the morning of the Show instead of the previous evening.

*Hyacinths* were the leading feature of the Exhibition, and were well grown, the spikes being evenly developed. In the open class for twenty-four single varieties, distinct, Mr. E. Payne, nurseryman, Fulwood, was well ahead of Mr. H. Winwood, Ashton, the other only competitor, who was awarded the second prize. In the corresponding class for the same number of double varieties the same two exhibitors staged plants and obtained the awards in the order named. In the amateurs' class for twenty-four single varieties, distinct, J. B. Dixon, Esq., Treasurer of the Society, was the only exhibitor, and was deservedly awarded the first prize for a well-grown collection. For twenty-four double varieties the same exhibitor again took the lead with capital examples. In other classes the prizetakers were Mr. J. B. Dixon and Mr. R. Learell, gardener to R. Smith, Esq.

Six classes were devoted to Tulips, and most of those that took the leading places were in splendid condition. The prizetakers were Mr. J. B. Dixon and Mr. T. Moss, who had well-grown specimens. *Narcissus* were staged in grand condition, both *Polyanthus* and border varieties. Five classes were devoted to them, and Mr. J. B. Dixon took the lead in all.

For twenty pots of bulbs, corms, tubers, or rhizomes in flower in 6-inch pots three collections were staged. Mr. T. Moss secured the premier position, followed by Mr. J. B. Dixon. The first collection was good, and some of the plants very effective; it comprised fine examples of *Allium neapolitanum*, *Eucharis amazonica*, *Cyclamen* red and white, *Narcissus Horsfieldi*, *Lilium longiflorum*, and *Lachenalia*.

*Primulas* were exhibited in fine condition. For six plants of any variety Mr. A. Waters, gardener to J. Eccles, Esq., Farington House, was well to the front with the most profusely flowered plants we have seen for some years. *Cyclamens* were not largely represented, only five collections being staged for the six prizes offered in the two classes, Messrs. Whittle and T. Moss being the prizewinners. *Lily of the Valley*, *Deutzias*, table plants, and others were also well shown by the exhibitors already named.

In the class for a miscellaneous collection of plants arranged for effect, not to exceed 100 square feet or 10 feet of frontage, three competitors entered. Mr. T. Moss was first with the brightest and most effective arrangement. This collection contained a large number of flowering plants. Mr. J. B. Dixon was second, but many of the plants were not very choice. Mr. Frisby was third, a large number of Ferns being employed. The back of this group was very effective with *Lomaria gibba* and *Blechnum corcovadense*, with *Nicotiana affinis* peeping out. If this group had had two or three brighter plants towards the front, rising lightly from the Mosses and Ferns, which was rather flat, it would have been the best.

For three foliage plants Mr. J. B. Dixon took the lead with a good plant of *Cycas revoluta*, *Phoenix rupicola*, and *Pritchardia filamentosa*; Mr. F. Clark being second with *Pandanus utilis*, *Cycas revoluta*, and *Lytania borbonica*; and third Mr. Frisby. For six miscellaneous plants the prizewinners were Messrs. Frisby, J. B. Dixon, and J. Clarke, gardener to Mrs. Birchell. With six *Azaleas* Mr. J. Dixon took the lead, showing fair-sized plants profusely flowered. Mr. Wright had the best three Orchids—*Dendrobium Wardianum*, *Cypripedium Boxalli*, and *C. villosum*. For one plant the same exhibitor was again first with *Cattleya Trianae* well bloomed, some of the spikes carrying four large blooms.

Cut flowers and bouquets were not largely represented, and those shown had suffered through being staged on the previous evening. For one basket of flowers Mr. Wright, gardener to J. S. Slater, Esq., was first with a choice assortment, Mr. C. Parker being second, and Mr. T. Moss third. For one vase of flowers Mr. T. Moss was the only exhibitor, and was awarded the first prize. For one bride's bouquet Mr. Widdling, gardener to Colonel Wilson, was first.

Three prizes were offered for six varieties of vegetables, but only two collections were staged. Mr. Frisby was deservedly first, staging good



dishes of Seakale, French Beans, Mushrooms, new Potatoes rather small, a dish of small Tomatoes, and a good dish of Asparagns.

**Miscellaneous Exhibits.**—Mr. Troughton, nurseryman, 4, Church Street, Preston, and Walton-le-dale, had a very effective bank of foliage and flowering plants, Lily of the Valley, Hyacinths, Azaleas, and *Dracæna Lindenii* being especially noteworthy. The Society's first-class certificates were awarded to the following Azaleas:—Mons. Louis Obert, very bright double; Souvenir de Madame Vervaene, and Max-Von Froebell. This collection also contained specimens of a new *Scolopendrium*, named by Mr. Moore *S. vulgare crispum ornatum Athertonii*, after Mr. J. Atherton, who raised it. This was awarded a first-class certificate. Mr. J. Atherton was highly commended for a large group of succulent plants, which added to the interest of the Exhibition. Mr. Frisby received a similar award for a clump of Mushrooms and a splendid case of skeleton leaves. The Secretary, Mr. J. Atherton, Fern Bank, Cudley, deserves congratulation, for the success of the Exhibition in a very large measure depends upon his exertions. The whole of the staging and other arrangements entirely devolve upon him, and they were ably and successfully carried out.

#### BRISTOL.—MARCH 17TH AND 18TH.

This annual Exhibition was held in the Colston Hall, Bristol, and though it would not have been surprising if the very cold weather had spoilt the Show, there was no marked falling-off in the number of entries or the quality of the exhibits.

**Bulbs.**—These were not quite so well represented as usual, and the Judges were much less time in making their awards than is often the case. The principal class comprised eighteen Hyacinths, distinct varieties, and twelve pots of Tulips, and five collections were in competition. Mr. G.

gardener to H. St. Vincent Ames, Esq., was third. Mr. Rye was also first with four plants, and Mr. F. Edwards, gardener to J. Lysaght, Esq., second. Mr. Bannister had the best six Ferns, these consisting of good-sized healthy plants of *Adiantum farleyense*, *formosum*, and *trapeziforme*, *Microlepia hirta cristata*, and two *Gymnogrammas*. Mr. E. Miller was a good second. Mr. Rye was first with four flowering plants, these consisting of a good white Azalea, *Phajus grandifolius*, *Genetyllis tulipifera*, and *Phœnocomia prolifera*. Mr. E. S. Cole, gardener to W. Pethick, Esq., was second, and Mr. Perry third. Fewer large Azaleas than usual were shown, but some of them were beautifully flowered. Mr. C. Taggett had the best four plants, and was awarded first prize and the silver medal of Royal Horticultural Society. They consisted of good pyramids of Mrs. Turner, Model, Iveryana, and Souvenir du Prince Albert. This exhibitor was also successful in the other classes, as also were Messrs. Perry and E. S. Cole. Table plants are always good at Bristol. Mr. R. Morse, gardener to S. Budgett, Esq., was first with elegant well-coloured plants of *Pandanus Veitchii*, *Cocos Weddelliana*, *Croton Johannis*, *C. Warrenii*, *Dracæna nigro rubra*, and *D. Willsi*. The best six table Ferns were shown by Mr. J. Loosemore, gardener to W. Cooper, Esq. Cinerarias were particularly well shown by Mr. F. Edwards. Cyclamens were also good, Mr. S. Blacker, gardener to Miss Charles, being first, and Mr. F. Edwards second, the latter having much the best strain. Messrs. Bannister, R. Bow, and W. Webley were the prizewinners with single Primulas; J. H. Vallance, gardener to J. C. Wall, Esq., H. Sprey, and S. Pemfrey, gardener to D. Thatcher, Esq., with double Primulas; E. Miller, E. S. Cole, and F. Edwards with Violets, and H. Sprey with Mignonette, the exhibits being creditable throughout. Mr. Nicholl was first for a single Orchid, having *Phalænopsis amabilis* in fine condition, the same plant and spike of bloom being first last November.



Fig. 44.—*ACANTHEPHIPIUM BICOLOR*. (See page 233.)

Marsh, gardener to M. Dunlop, Esq., was rather easily first, having massive, well-developed spikes of Hyacinths and Tulips of the usual varieties. Mr. W. Lintern, gardener to W. Butler, Esq., was a fairly good second, his Tulips being very sturdy and fine; and Mr. F. Perry, gardener to H. Cruger Miles, Esq., was third, his collection comprising several good Hyacinths. Only Mr. R. Bow, gardener to F. W. George, Esq., competed in the class for twelve Hyacinths, and was awarded the first prize for a fairly good collection. The next class was for twelve Hyacinths in four colours, and this brought together several good exhibitors—Messrs M. Hookings, F. Perry, and C. Taggett. In a corresponding class confined to amateurs Mr. W. Lintern was first, Mr. Bow second, and Mr. C. Taggett third, each including fairly good examples of well-known sorts. Other exhibitors in smaller classes were Messrs. Marsh, Gilbert, Howes, C. Taggett, H. Spry (gardener to T. Gibson, Esq.), Hookings, and G. Shelton (gardener to W. K. Wait, Esq.). Hyacinths in glasses were particularly good, the best of them being equal to the majority shown in pots, especially those from Mr. M. Hookings. Tulips, like the Hyacinths, gave evidence of having been hurried into bloom, and were scarcely so good as usual.

**Fine-foliaged and Flowering Plants.**—There were two competitors with groups of plants arranged to occupy a space 12 feet by 7 feet, and both exhibits were remarkably good. They were formally arranged, but as only flowering plants were used this could scarcely be termed a fault. Mr. F. Perry was awarded the first prize, owing, probably, to the number of good Orchids shown in his group. The remainder of the group consisted of well-flowered Azaleas, Pimcleas, Deutzias, Cinerarias, Lichenalias, and various forced bulbs. Mr. W. Rye obtained the second prize for the freest and most imposing display, which included large Camellias, Azaleas, and various other good hardwooded plants. With six fine-foliaged plants Mr. Rye easily secured the premier award, having grand specimens of *Croton pictus*, *Weismanni*, and *interruptus*, *Latauia borbonica*, *Areca sapida*, and *Pandanus Veitchii*. Mr. E. Miller was a good second, his best being fine healthy specimens of *Cycas revoluta* and *Cibotium spectabile*. Mr. W. H. Bannister,

**Cut Flowers.**—The classes for these were increased, and may be said to have been the most attractive in the Show. Four beautiful stands of twelve bunches of cut blooms, distinct varieties, were in competition, the first prize going to Mr. F. Perry, who had all Orchids; Mr. E. Miller was second and Mr. E. S. Cole third, both having good Orchids. Mr. E. S. Cole had the best twelve Roses, these consisting principally of *Maréchal Niel* and *Catherine Mermet*. Mr. E. Miller had fresh blooms of *Niphetos* and *Devoniensis*, and was awarded the second prize. Four competed for the prizes offered for a vase of cut flowers, and all were of nearly equal merit, the flowers being very choice. Orchids predominating. The first prize and bronze medal of the Royal Horticultural Society was awarded to Mr. A. Stapleton. Bouquets were plentifully shown, but were not so good as usual.

**Fruit and Vegetables.**—Some well-kept bunches of Grapes were shown, Mr. Nicholl, gardener to Mrs. Miller, being first with Lady Downe's in excellent condition; Mr. Loosemore was second with Muscat of Alexandria, and Mr. E. S. Cole third with Lady Downe's. Mr. J. Stapleton, gardener to H. Mardon, Esq., had the best Pears, a good dish of Catillac; Mr. E. T. Hill taking the second prize with Uvedale's St. Germain. Mr. Bannister was first with Apples, having a fine dish of Ribston Pippins; Mr. Hill following with Reinette de Canada; and Mr. J. Aplin, gardener to W. M. Baker, Esq., was third with a highly coloured dish of Northern Spy. The best basket of vegetables was brought by Mr. Bannister, these consisting of Snow's Broccoli, Welford Park Kidney Potatoes, Leeks, Brussels Sprouts, Mushrooms, Danvers's Yellow Onions, Seakale, Beet, and Carrots, or one dish too many, and had to be disqualified, an extra prize, however, being awarded. Mr. Aplin secured the first prize with a good basket, Asparagus being very fine, and Mr. J. Nicholl was a good second. The first prize for Cucumbers was awarded to Mr. J. H. Vallance for a good brace of Telegraph.

**Not for Competition.**—From J. Dorrien Smith, Esq., Trescoe Abbey, Scilly Isles, came a grand collection of cut blooms of Narcissi. Messrs. Garaway & Co, Durdham Down Nursery, Clifton, arranged a fine bank of well-grown Hyacinths and Tulips, among which were several new sorts, as



well as a good selection of the best of the older varieties, and they also contributed a useful variety of other stove and greenhouse plants, all of which added largely to the general effect.

The Secretary, Mr. Polkenhorn, and the practical Committee deserve much praise for the admirable Show provided.

### THE WEATHER AND VEGETATION.

WE have received a great number of communications respecting the weather and its effects on vegetation, and as the season has been a remarkable one the record is interesting. Happily, since the majority of these letters were written a surprising change has occurred in the weather. The temperature in the south of England has risen considerably, with mild winds and occasional showers, reminding us of April. Already this change has begun to affect vegetation, and the buds of fruit trees are rapidly advancing, while vegetables generally are beginning to freshen and renew growth. We thank our correspondents for the information they have conveyed in the following letters and others that remain to be published.

#### BERKSHIRE.

WE had many frosts up to February. We may say the weather was quite seasonable, but February itself was more severe than usual, with cold N.E. winds and frosts, very little snow or rain. March has been a continuation of severe frosts; wind, E. and N.E. Up to the present date 9° of frost is the lowest registered here this month; that was on the 1st. On the 7th we registered 19° of frost, other dates from 11° to 15°. The effect upon all vegetation is remarkable; nothing seems to have escaped the frost and cold east winds. The oldest inhabitants in this district never remember such a February and March.

One thing I have noticed most particularly—*i.e.*, the number of white frosts we had both in February and March, and also the small quantity of snow and rain. Whilst other districts were having large quantities of snow we had scarcely any.—CHARLES HOWE, *Benham Park Gardens, Newbury.*

#### CAMBRIDGESHIRE.

OUR first frost came the first week in November, and destroyed all Dahlias, Heliotropes, and other tender bedding plants. It ranged from 3° to 7°, and lasted a week. The rest of the month was mild, but on December coming in frost and snow was the rule, 8° being the most registered. Outdoor Chrysanthemums, and other late-flowering plants, were cut off; but at Christmas time or for a day or two the weather was somewhat mild, then frost again set in, and from that time until March 16th the frost has been continuous, but more or less severe. Several times 8°, 10°, and 12° were registered, but on March 7th (Sunday) the glass stood at 15°, or 17° of frost. This has not been reached since by 3°—one occasion 14° and another 12°, but mostly ranging from 4° to 10°. Much snow has fallen at times, and has laid on the ground for weeks; but a partial thaw has occurred at times, and melted the snow sufficient to expose many things to the action of the frost, and much damage has been done to vegetables. Broccoli for spring use has all been frozen through, and the heads are rotting off. Cabbages, both old and young, are blackened and dead, as also are Winter Onions, Spinach, &c. Brussels Sprouts have stood the best, and among four sorts grown the Aigburth and one called Craig's Favourite are the least injured. Shrubs are cut about a good hit, but not, I think, permanently injured. On farm land I never saw the Wheat plant so much blackened; the same may be said of grass land. Many strange birds are visiting the neighbourhood in search of food; some are dying.—THOS. RECORD, *Brewery House Gardens, Royston.*

#### CUMBERLAND.

THE winter of 1885-86 will long be spoken of in this district as one of great severity. Sudden changes were characteristic of the weather from the middle of November, 1885, to the beginning February, 1886. During that time on several occasions we had all sorts of weather, except sunshine, in twenty-four hours, rain, snow, and frost alternated with each other for about six weeks. Since the beginning of February, however, the weather has been steady in character. North and north-east winds with heavy snowfalls and sharp frost have prevailed since February came in up to the present time, and to-day, 17th March, snow has fallen to a depth of 3 inches, and while I write, with a cold north-east wind blowing, there is every probability of a keen frost again to-night. The most severe frost that we had here in February occurred on the nights of the 1st, 2nd, 3rd, and 4th, when the thermometer indicated 22°, 23°, 21°, and 19° of frost respectively. We have had frost every night since March came in, the severest being on the nights of the 6th, 7th, 8th, and 10th, the thermometer marking 24°, 19°, 16°, and 20° of frost on the respective nights. The effects on vegetation of the weather indicated above cannot at present be defined with accuracy further than that the buds of deciduous trees and shrubs are not in a more advanced state now than they usually are in ordinary seasons the third week of February, and that, with the exception of Snowdrops, there is a total absence of spring flowers, except when they are located in sheltered cosy nooks. I expect Roses will have suffered, and several, I fear, will not recover. In the kitchen garden a clean sweep has been made of Cabbages. Brussels Sprouts have not been much injured, Broccoli are all killed, Lettuce and Winter Spinach the same. Celery has suffered where not specially protected, and autumn-sown Onions are nearly all destroyed. As a matter of course outdoor work is very much behind, and a general depression is the prevailing feeling amongst farmers and gardeners in this district.—J. HAMMOND, *Brayton Cumberland.*

#### DERBYSHIRE.

THE Derbyshire climate is always a mixture of winter and summer, but we have missed the spring this year. On the 21st of August, 1885, we had 7° of frost, which destroyed our Vegetable Marrows, Beans, and Dahlias. We experienced sharp frost again in September and October that quite destroyed Cauliflowers, Lettuce, and greatly injured our Chrysanthemums and many other plants outside, also spoilt late Plums and Cherries on walls. All kinds of herries last autumn were abundant, and many of the old hands prophesied a hard winter, which has been the case. For the last three months we have had frosts nightly, with strong easterly cutting winds that have destroyed all kinds of green crops with few exceptions, such as a few Sutton's Late Queen Broccoli, and a variety of very hardy and delicious Welsh Kale, that we find most serviceable. This Kale would be a useful agricultural crop, withstanding any weather, and very productive, greedily eaten by sheep, &c. I find we have had frost on every night through March. On the 7th at 8 A.M. we had 22°, which I believe to be the most severe thus late in the season ever remembered. Strawberries are completely shrivelled, Apricot buds fall off, many Rhododendrons are much injured, also Hollies are shedding foliage in exposed situations, but we cannot tell yet the amount of damage.—J. H. GOODACRE, *Elvaston, Castle Gardens.*

THOUGH we had slight frosts previous to December 8th, I date our wintry weather from that time. On that and the three following days we registered consecutively 12° frost, with a thermometer 3 feet from ground in a sheltered place. The 12th and 13th of that month showed signs of thaw, having dense fogs, which we often get at this season on these hills. The ice house was filled on the 14th. Fogs continued till Christmas day, which was dry and frosty. 28th, Strong west wind blowing, so looking out for rain we set to work hard and fast, pushing on with digging, but the afternoon put a stop to all digging operations with a storm of snow and hail, settling down to rain, and we have not been able to have a square yard dug since. 29th, Registered 12° of frost with fall of snow. So ended the old year.

1st, 2nd, and 3rd January, 1886, mild; heavy rain during night of 3rd, clearing away most of snow: 6th, sharp frost set in again, heavy fall of snow on the 8th; 16° frost on the 9th; sun broke out on 11th; 12th and 13th, sleet and rain, taking away deal of snow; 17th, heavy snow; 18th and 19th, registered 19° and 20° of frost; 29th, 4 inches snow fell through the day; 31st, day of snow. February, opening with snow, bright and sunny, continued through the month frosty, increasing the last week. March, strong east wind blowing, heavy fall of snow in all directions whole of the day, with 6° frost. Shrubs weighed down with snow, but escaped here unhurt. Average fall 8 inches: 4th, registered 14° frost, heavy snow following day, continued sharp up to the 11th, since frost daily, 8° to 4°; had very heavy snowstorm from 3.30 to 4.10 on Monday 15th, snow falling whole of the day, 16th, with 7° frost.

I can form but a slight idea how vegetation has stood being so much under snow. All Broccoli killed except a flat of Sutton's Late Queen, which looks well just peeping out of snow. Curled Greens, Chou de Burghley, Chou de Russie, we can find a hit to cut at, but poor. Good stock of Lettuce and Parsley under the snow. I find a good lot of Christmas Roses yet for gathering under handlights, also Winter Aconite under the snow. Wallflowers all killed; large clumps of Heuchera look withered. All shrubs seem to have escaped, large Coronilla glauca, that has stood several years, was broken with snow; another plant looks scorched, but is not dead. Euonymus, Escallonia, &c., against wall have the foliage slightly injured. A large plant of Rôve d'Or Rose against a wall seems killed, but with the quantity of snow still lying can give no correct statement.—GEO. BOLAS, *Hopton Hall Gardens.*

#### DORSETSHIRE.

FOR warm Dorset, as it is often called, we have experienced a most severe winter and its effects on vegetation. Since last October we have registered frost almost every night; the most was 18° on the 27th February, and again on the 16th March. The green crops are scarce. Broccoli we have lost in hundreds. Snow's and Penzance varieties, which in other seasons we used to cut in abundance, were all killed by frost in January. We have to look forward to the late varieties; the two sorts which seem to have weathered the storm best are Veitch's Model and Sutton's Late Queen. Cabbage plants, which were put out in their quarters about the first or second week in September, are as forward as when put out, as very little growth has been since the middle of September. There has been but very little snow. We only had the ground covered once—the 5th of March, which lasted a few days. A cold dry March gives us a better chance of a warm moist May.—D. WILLIAMS, *Gardens, Canford Manor, Wimborne.*

THE present winter has been the longest we have ever experienced here, and second only in severity to that of 1854-5, whilst its effects on vegetation are without parallel in my recollection. We had very severe weather early in September, when a succession of frosts proved fatal to French Beans and Marrows, and checked the growth of all root crops to such an extent that they have never fairly recovered. The loss to local raisers of Cabbage plants was very heavy. A continuation of hard frosts and slight thaws throughout six months have been most trying; and such things as Brussels Sprouts, Broccoli, Borecole, Kale, and Spinach have suffered severely. Parsley is entirely killed out of doors, and the sharp frosts and keen east winds of the present month have played sad havoc with our plants for the spring, little snow having fallen to protect them. The hardest frosts we had in December was on the night of the 10th



when the thermometer registered 23°; in January, 22°, on the 7th; in February, 18°, on the 9th; whilst the readings every morning for the present month are as follows:—1st, 4°; 2nd, 4°; 3rd, 4°; 4th, 20°; 5th, 7°; 6th, 13°; 7th, 22°; 8th, 8°; 9th, 7°; 10th, 12°; 11th, 16°; 12th, 14°; 13th, 13°; 14th, 11°; 15th, 13°; 16th, 9°; 17th, 16°; after which a thaw set in, accompanied by rain, with every prospect of milder weather.—W. G. PRAGNELL, *The Gardens, Sherborne Castle*.

## DURHAM.

In the county of Durham snow has fallen to the depth of several feet, the roads being entirely blocked, and that cutting and carting has had to take the place of the snow plough owing to the depth of the snow, and the latter was unworkable. Shrubs were crushed to the ground and partially broken. "On our cold damp ground vegetables are a perfect wreck, and at the present time are all under snow. Broccoli suffered from frost before the deep snow fell, and is now decaying or rotting away. Celery is in the same position, and Brussels Sprouts little better. The snow is still a foot deep over the garden, and the worst results are not seen. It is now snowing while writing, a heavy wet snow falling fast, with a north-east wind. Our frost, although not so severe as in 1879, 1880, and 1881, has been of a long duration, ranging from 5° to 23° of frost on most nights, and has done more harm to vegetables by its being accompanied by rain or snow than it otherwise would have done, outdoor work being at a standstill; seed-sowing, &c., is being carried out under glass.—J. HUNTER, *Lambton Castle Gardens*.

## FLINTSHIRE.

THE early part of the winter was not unusually severe with us, 16° of frost being the most registered; but we have had very severe weather since the end of February, and on the 1st of March a fall of 8 inches of snow accompanied by a high wind drifted it in some places to a depth of 6 feet. On the 7th the thermometer registered 22° of frost. As far as I can judge at present vegetation has not suffered much. I think the snow has protected it to a great extent.—JOHN FORSYTH, *Hawarden Castle Gardens, Chester*.

## GLOUCESTERSHIRE.

THE winter from the commencement of the present year has been severe and protracted, with but few days of anything like mildness. On the 6th of January we had a heavy fall of snow, and on the night of the 7th 22° of frost. On the 26th another heavy fall of snow took place, followed in a few days by cold rains. During February no rainfall occurred; cold easterly winds prevailed with keen frost. On the 1st of March we had a deep snow, much of which still remains (March 18th) on the north side of walls, roofs, and hedges. We had 20° of frost on the night of the 7th, and it has been severe and keen ever since. The effects of this upon vegetation is disastrous. Broccoli, Brussels Sprouts, Cabbage plants, &c., seem as if a fire had passed over them they present such a scorched and withered appearance; even Leeks, usually so hardy, seem almost in as bad a plight. A direct consequence, no doubt, will be a great scarcity of green food for a considerable time to come.—WILLIAM NASH, *Badminton Gardens, Chippenham*.

## HEREFORDSHIRE.

THE winter of 1885-86 must rank as the most severe of late years. On the 16th March snow was lying which fell fifteen days before, and more seems threatening. The frost which killed all bedding plants, &c., in September was the harbinger of a winter of unusual length. The autumn flowers were robbed of their beauty, and nipping frosts and piercing winds now retard the appearance of spring flowers. In 1884 the shrubberies, &c., here were a mass of Primroses, and Crocuses, Snowdrops, Hepaticas, and other spring flowers were in full beauty early in February, while now everything is nipped. The fruit trees remain quite dormant as yet, and vegetables as represented by the Brassicas are much injured. The drought of last summer prevented their making much growth then, and the frosts of spring have withered those that have struggled through the winter.—CHARLES DENNING, *Holme Lacy Gardens, Hereford*.

## HERTFORDSHIRE.

WE have had almost continuous sharp frost and snow since the 6th of January. The greatest number of degrees of frost have been—on January 7th, 15°; January 8th, 22°; January 9th, 12°; January 19th, 14°; and 20th, 14°. The greatest number in February 6th, 12°; February 7th, 12°; February 8th, 13°; February 9th, 18°; February 10th, 18°; and February 24th, 12°; and March 4th, 12°; March 7th, 16°; March 8th, 13°; and March 9th, 12°. So far this year we have had only seven nights without frost; the last was on the 14th February. The frost is deeper in the ground at this time than it has been any time this winter.

We had a heavy fall of snow on 6th January, about 8 inches; altogether we have had about 16 inches.

The January rainfall with the snow was 3 inch, 30°; February rainfall with the snow was only 60°; March rainfall with the snow to this date 20°, which was a snowstorm on the 1st. The ground has not been quite free from snow since the 6th of January; neither has a lake here been quite free from ice since the same date. Vegetables have suffered very much, Broccoli mostly killed, and I am afraid autumn-planted Cabbages are the same. Spring bedding has suffered very much too; trees and shrubs have stood the frost well. They were well ripened in the autumn. Fruit trees are in a backward state. All kinds promise well except Pears.—G. NORMAN, *The Gardens, Hatfield House, Herts*.

## HUNTINGDONSHIRE.

THE winter has been unusually prolonged this year, and at the present

time vegetation is no more forward than is often the case in the middle of January. Although 15° of frost is the most that has been recorded, yet the temperature the last three months has averaged unusually low, standing at, or a little below, a few degrees of frost day after day. This week there has been at least 6 inches of snowfall. The majority of trees and shrubs look uninjured. Coniferæ seem all right, likewise fruit trees, but until a general thaw and change of weather sets in, it is not possible to tell what mischief may be done to rockery and herbaceous plants. Vegetables are getting scarce, and many hundreds of Endive and Lettuce have been spoiled by the alternate frosts and thaws. Broccoli look safe, but are smaller than usual. The reason of that is the previous summer being so hot and dry at planting time, and for some time afterwards.—A. HARDING, *Orton Hall Gardens, Hunts*.

## KENT.

THE following is an extract from weather observations kept in these gardens from October, 1885, to the present time, March 17th, 1886. In October we had fifteen fine days. On sixteen days we had very changeable weather, rough wind, fogs, rain and sleet. Highest temperature during the month, on the 2nd, 50°; coldest night was the 11th-12th, the glass went down to 23°. Frost on twelve nights during the month. Total of frost for the month, 37°. On the morning of the 24th we registered 1.40 inch of rain. Raining the whole of the day on 23rd, and very heavy rain at night, the greatest rainfall for any twenty-four hours in the year 1885. Total rainfall for October, 4.34 inch.

During November, 1885, we had ten fine days, nine foggy days, variable weather other days of the month. Very rough on the night of the 27th. Highest temperature on any day during the month was 54°, 29th; coldest night, 17th, the glass went down to 21°. During the month there was 84° of frost. The glass went below 32° on fourteen nights. Rain fell more or less on fifteen days. Total rainfall for the month, 2.70 inch.

December, 1885.—Number of fine days for the month, seventeen. Foggy, more or less, on twelve days, two very foggy. Very little sun during the month. Snow on the 27th and 29th. Very rough wind and rain storm on the evening of the 28th. Highest temperature on any day during the month, 48° on the 2nd; coldest night the 10th, the glass went down to 15°. The glass went below 32° on twenty-one nights. Total of frost for the month, 151°. Rain for the month, 1.04 inch.

January, 1886.—Fine days during the month, fifteen. Heavy fall of snow on the 5th, little snow on the 6th, 10th, 12th, 20th, and 22nd, and very rough wind and rain on the night of the 16th. A very rough month of weather. Highest temperature on any day was 48° on the 2nd; coldest night the 7th, when the glass went down to 12°. Number of frosty nights for the month, twenty-nine. Degrees of frost during the month, 215. Rainfall and melted snow for January, 1.54 inch.

February, 1886.—Old men working here say this has been the coldest February known in Kent since 1856. Nine fine days, very little sun; a month of cold, snow, sleet, hailstorms, and dense fogs. The highest temperature on any day during the month, 39° on the 2nd; coldest night was the 8th, when the glass went down to 15°. The only two nights without frost were the 14th and 15th, when the glass stood at 32°. Total of frost for the month, 175°. A very dry month, rainfall only 0.54 inch.

March, up to 17th.—Eight fine days, with bright sun, but very dry; rain very much wanted; we get a little sleet and snow and foggy mornings; the ground at the present time frozen as hard as a stone, general outside work at a standstill. It will be seen by the foregoing remarks vegetation is worse than at a standstill; everything outside getting less and less, Brussels Sprouts, Curled Greens, and I would like to say, Chou de Burghley, but it was all used last week. I must say one word in favour of the last-named vegetable. What I grew of it stood the winter well, and is an excellent vegetable eaten as a Cabbage last month. Veitch's Model Broccoli is standing the winter best; of Cabbage Ellam's Dwarf Early. The following is a total of frost registered here during February from 1879. February, 1879, total of frost for the month, 45°; 1880, 67°; 1881, 70°; 1882, 46°; 1883, 21°; 1884, 31°; 1885, 78°; 1886, 175°.—C. DAVIES, *Moat Park Gardens, Maidstone*.

## MIDDLESEX.

THIS has been the longest and most trying winter I ever experienced not that the frosts have been so intense as in some winters, but they have been more continuous. Up to the time the snow left us about the middle of February vegetation did not seem to be unusually cut, but since then the bitterly cold and drying east winds and the long-continued frosts have cut things up most severely. There is not a green crop that has not suffered, and some of them are killed.—J. WOODBRIDGE, *Syon*.

## NORTHUMBERLAND.

THIS winter will be remembered for the quantity of snow which has fallen, and the time which it has covered the surface of the country. From January 5th to this 16th day of March, snow has fallen on thirty days, and during that period the country has been covered with snow, with the exception of fourteen to sixteen days.

On March the 1st and 2nd the climax was reached, when it snowed incessantly more than fifty hours, with a heavy gale of east wind, which caused immense drifts, blocking all roads and railways and snowing up several trains from two to three days. Much of this still remains on the surface, and yet it comes as though we had had none, and the atmosphere is charged with snow, with no signs of abating except that the barometer is falling.

The frost has not been very severe in this neighbourhood (three miles



from the sea), 18° of frost being the lowest registered, but a few miles west further inland from 24° to 28° has been frequently experienced. Green vegetables, where exposed, are quite shrivelled. Wallflowers, and other spring bedding, where planted in the autumn and exposed, have collapsed. Fruit trees will be benefited by being kept back—always an advantage in this climate, where late springs prevail. Roses have weathered the storm well. Evergreen trees and shrubs appear so far uninjured, having been sheltered by snow and a moist atmosphere, whereas when dry frosty winds prevail at this season great damage is done to the leaves. All labour on the soil has been suspended for three weeks, and the only seed sown outside are a few Peas and Broad Beans, and it will be a week or ten days now before anything can be done.—GEORGE HARRIS, *Alnwick Castle Gardens*.

#### OXFORDSHIRE.

THE winter here has been a very trying one, not that the temperature has fallen so low as is often the case, but the cold has continued for such an unusual long time, and we have had E. and N.E. winds, which we feel much, being nearly 300 feet above sea level. Lettuce, Broccoli, Spinach, &c., are pnnished; many Broccoli are quite killed, and looking as bad as in 1881. Some Eucalyptus in sheltered places are looking as well as I have seen them, except in Cornwall. Many of our specimen trees are disfigured through having branches broken by the weight of snow on January 7th, and stone walls, gates, doors, &c., are showing the effects of weather more than usual. The soil was so dry last season that nothing could grow. Brussels Sprouts, Broccoli, and Kales are only one-third of their usual size. Of course, everything is very late and much behind, but the buds on Lilacs and other early shrubs look strong and well; so do all the bulbs.

We had 17° of frost on the 17th inst., and have been having from 5° to 13° every night during the past several weeks. We registered 27° one night in January. Springs did not reach their usual level till December. They were very high in January, and now we are getting dusty dry again on this bed of sand.—WM. HOVELL, *The Gardens, Headington Hill, Oxford*.

#### SHROPSHIRE.

THIS has been one of the most sunless seasons that I remember for many years. There has been very few hours sunshine since the end of January, and very bad for those who have to get Grapes ready early in May. There has been sharp frost and snow, more or less, since 1886 commenced; but it has been more hindrance for work than destructive to plant life, and so far as I can see there is very little damage done to shrubs, Roses, and other plants, the lowest point reached being 22° of frost, which occurred on the night of the 6th and morning of the 7th of the present month. Our greatest fall of snow was in February, when there was 1 foot depth. Vegetation is quite dormant. The buds on Apple trees look more like December than the middle of March.

Our only consolation lies in the hope that when once it goes, we shall have spring upon us with a rush. The general crops of Peas and Onions, &c., are sure to be later than usual, owing to the lateness in getting in the seeds.—JAMES LOUDEN, *The Gardens, The Quinta, Chirk*.

#### SUFFOLK.

FROM the commencement of the year the weather in this district has been almost continuously dull and frosty. The fall of snow has been slight. According to our register the temperature fell below freezing point on twenty-nine nights in January, 14° of frost being the lowest. The rainfall, including melted snow, is 2.73 inches. February was a drier month, only 0.28 inch of rain. The temperature still low; on twenty-two nights the thermometers showed frost, 14° being the lowest. As yet March opened with no improvement in any respect. Frost has occurred every night, 11° being the most. The rainfall to present date is 0.69 inch. Day temperatures from the beginning of the year have been correspondingly low, only on two occasions have the thermometers in the shade reached 50°. The wind has mostly prevailed from N.W. to S.E., and at times has been bitingly keen. The effect of the weather on green vegetables at this season has, without exception, been most disastrous, and as regards supply the mischief is felt all the more in consequence of the drought of last year that prevailed during June, July, and August, which on our light soils greatly retarded the preparation and growth of winter greens generally. Moreover, this drought was suddenly broken up in September by 6.28 inches of rain; this, with the weather that followed, seemed to check all further growth, and left a very sparse supply both in gardens and farms, a scarcity that is a good deal felt especially amongst farmers. Fruit bushes and trees are safe, being in a very backward stage. Ground work, tree-planting, &c., has been, and is still, retarded by the frost.—J. WALLIS, *Orwell Park, near Ipswich*.

WE have had the longest winter in my recollection, the frost has never been very severe. It has registered 18° several times, and once or twice 19° of frost. There has been several falls of snow, but none of them so heavy as has been experienced in different parts of the country. Very few nights have been without frost since January. Trees and shrubs have stood the winter almost uninjured, this I attribute in a great measure to the absence of sun while the trees were frozen. Vegetables of all kinds have suffered severely, especially Celery, Broccoli, Cabbages, Lettuces. Borecole and Cottagers' Kale are as fresh and sound as possible, and for a severe winter are the most useful vegetable we have. I believe this is the general condition of vegetables in this district. Fruit trees of all kinds are as backward as in January.—THOS. BLAIR, *Shrubland Park Gardens*.

#### SURREY.

I BEG to submit the following items on the weather and its effects:—Height of Holmbury above sea level, 550 feet. Eucalyptus, killed; Sweet Bays, Laurustinus, Euonymus, &c., severely damaged, and it may be in some cases killed to the ground. Stocks, Wallflowers, Pentstemons, Antirrhinums, and other tender herbaceous plants nearly all killed. Winter Broccoli nearly all killed, and main crop of spring Cabbages quite gone. With regard to frost, I find we have only had six nights in the year without frost—viz., the first three days in January, and again on the 11th, 12th, and 13th of February. Thermometer ranging from 32° to 11°; wind direction since June 24th mostly from N.E. or S.E.; average frost since January 8° nightly. Rainfall for January, 4.52, of which 1.92 fell in snow; February, 0.74, of which 0.07 fell in snow; up to 18th March, 0.51, of which 0.06 fell in snow.—E. BAYMAN, *The Gardens, Holmbury*.

#### SUSSEX.

THE weather since Christmas has been the most remarkable that I ever remember. We have had frost and snow for a few days, then rain; one might have fancied we were in for a spell of good weather. Before twelve hours hard frost would set in, the wind having veered round to N. or N.E., then as suddenly rain again; for six weeks the weather was most changeable. For the past fortnight it has been very cold; wind mostly E. or N.E.; frost every night, varying from 8° to 17°, with occasional snow storms. I never saw vegetation cut up so much. Turnips, Swedes, Broccoli, Cabbage, Lettuce, Endive, and all kinds of greens look as if a fire had passed over them.

Spring flowers, of course, are very backward and look miserable—such as Pansies, Wallflowers, Daisies, Polyanthus, Myosotis, and many others, appear to be dead; in fact, everything looks seared, and I fear a great number of plants are past recovery. I do not think fruit buds are hurt yet; they are not forward enough.—GEO. W. BREESE, *Petworth Park Gardens*.

#### WORCESTERSHIRE.

FROM the 1st of January until now scarcely a night has passed without frost, varying from 2° or 3° to 21°. Since the 1st of March the cold has been more intense, and accompanied at intervals by heavy snow-storms and strong easterly winds. Our evergreens, shrubs, and Coniferae, such as Bays, Laurels, Laurustinus, Portugals, Magnolias, Euonymus, &c., appear none the worse, and I do not think will be. All fruit trees in this district promise well for a good bloom, and will be quite a month later in flowering than usual. Our Apricots last year were in full bloom at this date, now you are unable to discern the colour of the flower. In the kitchen garden winter-sown Beans and Peas have suffered very much, also young Cabbage, Lettuce, Cauliflower, and everything in a small or young stage. Broccoli, however, I think will, as a rule, prove to be unharmed.—JOHN AUSTEN, *Witley Court Gardens*.

#### YORKSHIRE.

THE winter with us has been exceptionally cold and long continued. Early in January we had a very heavy fall of snow, and from that time until now we have never been entirely without snow upon the ground. Cold east and north-east winds have preponderated over nearly the whole time. One most severe frost was on the morning of March 7th, when one thermometer registered 10°, or 22° of frost. At the present date, March 17th, we have about 3 inches of snow, with cold easterly winds, still no signs of any change to warmer weather. Winter vegetables have almost disappeared from the open garden. Brussels Sprouts and Savoys have decayed almost to their core, and spring Cabbage plants, which at Christmas were large and strong, are now very small and almost lifeless, plants which were then small have now entirely vanished. Cabbage sprouts are quite killed, and spring Broccoli quite ruined. Hardy shrubs will not, I think, have suffered materially, although they now cut but a sorry figure. The wood of last year was, however, well ripened, and has consequently borne the long-continued cold exceptionally well. The buds of all kinds of hardy trees are yet quite dormant. Vegetation of all kinds will necessarily be very late indeed with us, and in all gardens around Sheffield green vegetables of any kind will be scarce for the next two months.—W. K. W., *The Gardens, Oakbrook, Sheffield*.

IN this part of Cleveland the past winter has been a remarkable one. Up to the end of the year the weather was mild and open. The new year was ushered in with frost and snow, and from its advent until March 18th it might be said to have been three months of frost and snowstorms. On referring to our weather record I find during this period that snow has fallen on no less than twenty-nine days, but the climax was reached on the 3rd of this month, when snow had fallen continuously for two nights and two days, the wind all the time blowing a gale from the North Sea. When we first went out on that morning snow was found to be from 1 to 3 feet deep, and in some places drifted to 8 and 10 feet. On the morning of the 7th we had 17° of frost, and for several days the maximum temperature did not exceed 35°.

It is too soon to say precisely what effect this severe weather will have upon vegetation. Already the young shoots of Laurustinus and Portugal Laurels are much browned, and some things, such as New Zealand Veronicas, Euonymus, and Japanese Privet, are killed outright, but most kinds of Conifers and evergreens are little or no worse. All green vegetables are much injured. Broccoli, with the exception of Veitch's Model, look as if they will never recover.

No outdoor work has been done since Christmas, and of course no seeds put into the ground, but we have sown large quantities of Peas and



Broad Beans in pots, also pans of Cauliflowers, Brussels Sprouts, Onions, Leeks, Parsley, and Lettuce. These have been duly pricked out in pots or boxes, and stood in cool Orchid houses and frames in order to fit them for planting out when genial weather comes. On the disappearance of the snow this day, March 20th, I find Snowdrops coming into flower; they are just five weeks later than last year.—J. MCINDOE, *Hutton Hall Gardens, Guisbrough.*

## ROYAL BOTANIC SOCIETY.

MARCH 24TH.

THE Society's first spring Show of the year was held on Wednesday last in the corridor and large conservatory, Regent's Park, and a pretty display was produced, many of the groups being the same as those at South Kensington on the previous day. The weather was fine, and there was a good attendance of visitors.

Amaryllises were well shown by Mr. James Douglas, gardener to F. Whitbourn, Esq., Great Gearies, Ilford, who was first with twelve plants, and was also awarded the Veitch Memorial medal and £5 prize for a dozen varieties. They were all very fine, the Memorial Amaryllises including Vesuvius, Calypso, Empress of India, Lady Hulse, Great Gearies, Red Gauntlet, Dr. Masters, Clarinda, Sultan, Sir Garnet Wolseley, Napoli, and Madonna. Some had two spikes of four flowers each.

Roses were staged by Messrs. Paul & Son, Chesham, and W. Rumsey, Waltham Cross, who gained the prizes for six specimens, the first being well grown and freely flowered examples of such varieties as Madonna, Lacharme, Souvenir d'un Ami, and Souvenir d'Elise.

Deutzias were good, those shown by Mr. James Douglas, who was first with his six fine specimens, Mr. Eason and Mr. Wheeler following with smaller examples. Azaleas were neat, Mr. Eason having the best six half-globular specimens, well flowered, Roi Leopold, Roi d'Holland, and Van der Craysson being notable varieties. Mr. G. Wheeler and Mr. R. Butler took the other prizes, the last named showing very poor plants.

With twelve Hyacinths and twelve Tulips in pots Mr. James Douglas took the premier prize, showing good plants, but not quite in his best style. Mr. Eason was second in both classes. The nurserymen's prizes were awarded to Messrs. H. Williams & Son and H. R. Wright. Mr. Douglas and Mr. Eason were the prizetakers for Crocuses, the first-named having large pots full of bulbs. He also had the only nine hardy Primulas, being awarded the first prize. The prizes for Narcissi were secured by Messrs. H. R. Wright, H. Williams & Son, and James Douglas, all showing good specimens. Cyclamens were well exhibited by the St. George's Nursery Company, Mr. Wiggins, and Mr. D. Phillips, gardener to R. W. Mann, Esq., Langley Broom, Slough, who were awarded the prizes as named. Hardy herbaceous plants were shown by Mr. James Douglas, who was placed first with nine good specimens, the second-prize plants being the worst we have seen gain a prize. Lilies of the Valley were admirably shown by Messrs. H. Williams & Son, Finchley, who were first with grand potsful, Mr. H. R. Wright, Lee, and Mr. James Douglas following. For twelve pots of hlbons plants Mr. T. S. Ware was first with a pretty collection, Chinese Primulas being shown by Messrs. J. James, H. Williams & Son, and J. Wiggins.

MISCELLANEOUS.—Mr. B. S. Williams, Upper Holloway, exhibited a handsome group of 150 Hyacinths, a large number of Tulips, Daffodils, and Lilies of the Valley (silver medal). Messrs. W. Cuthush & Sons, Highgate, staged an imposing group of Hyacinths and Azalea mollis. Messrs. J. Veitch and Sons, Chelsea, exhibited a magnificent collection of Hyacinths, with some new Amaryllises and other plants (small silver medal). Messrs. Barr & Sons, Covent Garden, showed a fine collection of Daffodils, Anemones, Snowdrops, Palms, &c. (small silver medal). Mr. T. S. Ware, Tottenham, contributed an extensive collection of Daffodils and other flowers (small silver medal). Messrs. Collins, Bros., & Gabriel, 39, Waterloo Rd., had a large collection of Daffodils and Anemones. Mr. W. Rumsey contributed three boxes of Rose blooms and several plants in pots (large bronze medal). Mr. J. Wiggins, gardener to W. Clay, Esq., Kingston, had a group of Cyclamens. Mr. J. James, Farnham Royal, had a group of handsome Cinerarias. The St. George's Nursery Company, Hanwell, had a group of Cyclamens (large bronze medal). Frederick Jacob, Esq., Stamford Hill, showed a group of Odontoglossums arranged with Ferns (bronze medal). Mr. Stephen Castle, West Lynn, Norfolk, was awarded a certificate of merit for baskets of Gros Colman, Lady Downe's Seedling, and Alicante Grapes, all very fine and well kept.

Certificates were awarded to the following:—Dendrobium Leechianum, from Messrs. W. Thomson & Son, Clovenfords; Cattleya Lawrenceana, from Mr. B. S. Williams and Messrs. Laing & Co., Forest Hill; Imantophyllum robustum Mrs. Laing, from Messrs. J. Laing & Co.; Narcissus General Gordon, from Mr. J. Douglas; Amaryllis Plato and Lascelles from Messrs. J. Veitch & Sons; Odontoglossum Pescatorei Vervaeianum, from Mr. E. Vervaeet, Mont St. Amant, Ghent; Amaryllis Clarinda, from Mr. J. Douglas.



## HARDY FRUIT GARDEN.

As buds soften and begin to swell much mischief is frequently done by blightfinches, which must be shot in orchards of large trees. Garden trees kept trim and small by pruning should be syringed with a liquor of soft-soap dissolved in hot water and some soot well stirred in it. This can be thrown over the whole of the trees by means of a syringe with a coarse

rose, so that every bud may have a coating of it, and so be rendered distasteful to the birds. If the weather is wet and stormy this dressing may be washed off, and it must be at once renewed, as the buds are never safe at this season of the year. We invite particular attention to this really important matter, for upon it may rest the success or failure of a fruit crop. Let all fruit trees planted last autumn be examined now to see if the soil about the roots is firm and fastenings to supports are secure. If mulching was applied to the trees at the time of planting, as it always should be, the soil will be undisturbed now, but without mulching there is risk of its being loosened by frost, and a newly planted tree cannot grow in loose soil. See that the stems of young trees in orchards under grass are protected from sheep and cattle by hushes or tree guards. We prefer a compact screen of fine bushes bound about the stems so closely that no harm can be done by hares and rabbits. These pests may be excluded from fruit plantations enclosed by fences by putting wire netting to the fence, but this is seldom done in the right way. To fasten a piece of netting of the ordinary width along the fence with the bottom just touching the ground, is a mere waste of time and money, for rabbits have no difficulty in getting both under and over it. To render such a fence really rabbit-proof, peg wire netting upon the surface of the soil at the foot of, and outside the fence, and continue the netting up the fence. If we thus cover a strip of soil 9 inches wide the puzzled rabbits cannot scratch a hole under the fence, and if the fence is covered to a height of 2 or 3 feet with netting, neither hares nor rabbits can jump over it. With a small ditch outside the fence we can do much to prevent jumping, and so avoid having the netting so high up the fence. If any of our readers suppose our note on this matter is somewhat elaborate, we may remind them that it is the exception, and not the rule, to find even so simple a thing as putting up wire netting done in the right way.

## FRUIT FORCING.

FIGS.—*Earliest-forced Houses.*—The early varieties, as Early Violet and Prolific, that were started in gentle bottom heat in November, will soon show signs of their last swelling for ripening; and this being the most critical stage in Fig culture checks of every kind must be carefully guarded against. To insure flavour a drier atmosphere and higher temperature with increased ventilation on fine days will be necessary, but withholding water must be gradual, and anything approaching dryness at the roots must be avoided. It is a good plan to give established trees in pots a thorough soaking with water a few degrees warmer than the bed, and then cover them with light mulching, as it absorbs moisture when the trees are syringed and gives off genial vapour for some time afterwards. Brown Turkey, the best Fig for any purpose, will not be quite so forward, though not far behind, and to these give good supplies of tepid liquid manure twice a week, syringing twice on fine days and once when the weather is dull. Give the second syringing in time for the foliage to get fairly dry before night. In mild weather keep the night temperature at 65°, 70° to 75° by day, with a heat ranging between 75° and 85° with sun, as Figs enjoy an abundance of heat and light and full exposure to sunshine. Stop and thin the side shoots, training terminals forward where space remains unfilled, and it can be done without shading the fruit.

*Succession Houses.*—Trees growing in inside borders will now require generous treatment in the way of liberal mulchings with good manure, copious supplies of water, and thorough syringing twice a day. Damp the paths and walls frequently, and keep the mulching constantly moist. Ventilate freely through the early part of the day, and close with a brisk heat about three o'clock in the afternoon.

*Late Houses.*—In most localities outdoor Fig culture is a precarious crop, but excellent crops of the finest varieties may be grown in unheated houses having a full exposure to the south. Plant the trees in well-drained narrow borders, either training the trees against the back wall and then down the roof a foot from the glass, or they may be planted in front and trained to trellises not more than 16 inches from the glass. The principal points in their culture are to keep them dormant as late as possible in spring, but when they begin growing the treatment should be generous. The growths must be kept thin and neatly tied up through the summer, with more freedom in the autumn, when the points will draw to the glass and be ripened by the warmth. In winter the border should have a mulch of some kind to protect the roots, and the branches must have a protection of mats or other material, as they are liable to suffer in times of intense frost.

VINES.—*Early-forced Vines in Pots.*—These having been well supplied with liquid manure and attended to with rich surface mulchings, will have the Grapes swelled to a good size and changing colour. It will be well to lessen the supplies of liquid manure, but it must be done gradually so as not to give a check; and though a drier atmosphere is essential, it will be best secured by allowing a gentle circulation of air constantly in preference to withholding moisture from the atmosphere, moisture not being nearly so inimical to early as to late Grapes, and it is necessary that the temperature be maintained at 60° to 65° at night, and 70° to 75° by day, keeping at between 75° and 85° through the day with sun, losing no opportunity of ventilating freely.

*Early Houses.*—Keep the borders inside supplied with tepid liquid manure, and mulch the surface with short manure, which should be constantly moist, sprinkling it as well as other surfaces at closing time, but open the house a little at the apex before dark to allow of the moisture escaping, and ventilate early, and increase it with the advancing temperature, reducing in like manner for the day at 80°, and in time to run up to 85° or 90°. Still allow moderate lateral extension as the best means of avoiding shanking through the encouragement given to the roots by the spread of foliage.



*Muscats.*—Those now in flower will require a light temperature and moderately dry atmosphere, and daily attention to fertilisation to hasten their setting. With fine weather there is no difficulty in running the house up to 90° with ventilation by day, and the roots being inside or warm, consequently active, the night temperature may fall to 65°, or 5° lower on cold nights. We have had Muscats set well in a night temperature of less than 60°, but the roots were in a corresponding temperature, and when these are warm Muscats set much better than when the roots are in an unfavourable medium. Where Vines are languid they may be relieved by the removal of a portion of the surplus bunches before they reach the flowering stage.

*Late Houses.*—Vines started in good time are making rapid progress, and will require daily attention in disbudding, stopping, and tying before the points of the shoots reach the glass. Where the semi-extension system is practised, stop at the second or third joint beyond the bunch, and then allow the laterals to extend until every part of the trellis is evenly covered with foliage. Train the shoots, however, sufficiently wide apart to allow the full development of the foliage; the leading growth may be allowed to ramble along the back wall. Inside borders must have copious supplies of tepid water. Shut off fire heat early on bright mornings, and use the syringe freely during bright weather. Outside borders that were uncovered when the Grapes were cut and bottled, or since January, will now require some protection from drying winds to prevent the roots striking down in quest of moisture. Fresh stable litter is the best for the purpose, as it will not shut off solar heat so completely as heavy mulchings, and unless the borders are poor heavy mulchings of short manure will be best deferred until after the Grapes are set and swelling.

*Ripe Grapes.*—The unfavourable keeping weather has been agains<sup>t</sup> the keeping of Grapes, but in properly ventilated rooms they have kept satisfactorily. Examine them twice a week for decayed berries, and when some of the bunches have been cut the bottles should be removed and a general overlook effected. Lady Downe's is keeping well, also Gros Colman, the latter little if at all inferior to a Black Hamburgh. Gros Colman is about the best abused Grape grown, on account of its poor quality, but started early or at the same time as mid-season varieties, and grown so as to ripen by the beginning of September and allowed to hang until January, by which time the berries will have lost their disagreeable earthy taste so characteristic of the otherwise fine Grape in imperfectly ripened and prematurely used specimens. All late Grapes require time to mature after ripening, but for Gros Colman it is absolutely essential.

#### THE FLOWER GARDEN AND PLEASURE GROUND.

*Roses.*—The weather has been very unfavourable for spring planting, and those planted early in the winter present a very unhealthy appearance. Those laid in are in the best condition, and if the first favourable opportunity is taken of finally planting them, pruning at the same time, they will soon commence active growth. Care should be taken to preserve as many of the delicate newly formed fibres as possible, and any newly planted Roses will be benefited by the addition of fresh loamy compost to the old soil. Where they are planted in dry positions, such as against sunny walls or near shrubberies, plenty of short manure may be worked in deeply, and a surface mulching be given to these and all other newly planted Roses. Teas are generally supplied in pots, and now is a good time to plant them. See that the soil is thoroughly moistened prior to planting, and they will take more readily to their fresh quarters if some of the roots are carefully unloosened and laid into the fresh surrounding soil. Plants that are to produce extra fine blooms should, after pruning is completed, receive a liberal mulching of manure, and this will better retain its moisture and be less unsightly if the surface soil is first carefully raked or forked back and then redistributed on the top of the mulching.

*Pruning Roses.*—This operation will be later than usual, but as no active growth has taken place, when the Roses do start the shoots will, in all probability, be extra strong and clean. The long well matured shoots on the Maréchal Niel may be laid in to their full length, the spray only being cut back, and it may be a few of the shoots if crowded or badly placed. Gloire de Dijon may be pruned similarly to the Hybrid Perpetuals, having the leading growths shortened according to their vigour by about one-half of their length, cutting back all straggling side shoots to within four joints of their base. It is the neglect of this pruning and poverty at the roots that spoils so many valuable trees of this popular Rose. The Teas should also be freely thinned out and shortened back, or otherwise the young growths will become weaker every season and the bloom correspondingly smaller. Banksians bloom the most freely when the growth is not very vigorous, and hard pruning ought, therefore, to be avoided. Lay in the leading growths, thin out the spray and that remaining with the fairly strong well ripened growth, and which may be lightly shortened, will probably produce abundance of trusses. The white variety is the best, being also sweet scented, while the yellow variety is the most robust. It is also time to prune the dwarfs and standards in the open. In every case the centres should be well hollowed out and all useless spray be removed. The more weakly the growth of the trees the more need of severe pruning, and *vice versa*. Shoots of the thickness of a slate pencil may well be shortened to about the three buds, but stouter growth ought to be left from 6 inches to 15 inches in length, according to their vigour, while in order to secure or maintain a well balanced head, long, badly placed, or straggling growth should be cut with old wood attached back to well placed growth nearer the centre of the tree. The foregoing applies equally well to dwarfs as to standards, but if preferred the former may have the long shoots which frequently spring up from their base

lightly shortened, brought down, and firmly fixed near the ground with the aid of strong pegs. Thus treated they would bloom at nearly every joint. During the summer more strong shoots would spring up, and these should take the place of those previously pegged down.

*Clematises.*—Many thousands of these most showy climbers are annually planted, but yet we seldom meet with them in good condition, or at any rate after the first two or three years. They fail owing either to being starved at the roots or neglected altogether. They ought to be planted in a compost consisting of three parts good loam to one of old Mushroom-hed manure or a good substitute for the latter. Then if properly pruned and trained they rarely fail to bloom splendidly whether over archways, up pillars and walls, or rambling over the tops of shrubs much as the wild sort does in our hedgerows. All are supplied well established in pots, and now is a good time to plant them. It is not advisable to wholly shake the roots clear of the soil, but as many of them as possible should be carefully uncoiled and laid in the fresh soil. The soil should be well rammed about them, and if dry weather prevail a good watering should be given before the old balls of soil become very dry. The pruning of both young and old plants must vary according to the sections to which they respectively belong. Jackmanni is perhaps the best known; this and others of the same type, such as Magnifica, Flammula, Prince of Wales, Rubella, Star of India, and Tunbridgensis flowering on the young growth formed the same season. Consequently these should be freely cut back at the present time to near where the growths last started, and in this manner the requisite number of strong young shoots will be obtained, and which may be trained to where the bloom is needed—say in a mass over a window on the trellising of a balcony. The Viticella type, which includes Lady Bovill, Mrs. J. Bateman, and Thomas Moore, requires similar treatment, as these, as well as Lanuginosa candida, Lady Caroline Neville, Gem, and W. Kennet, flower during the summer and autumn principally on the newly formed growths. The Patens type, which includes Lady Londesborough, Lord Londesborough, Lord Derby, Miss Bateman, Sir Garnet Wolseley, Fair Rosamond, and Standishii; and the Florida type, this including Countess of Lovelace, Lucie Lemoine, and Duchess of Edinburgh, flower on the ripened growth formed the previous season. Consequently such should have all dead wood cut away, and the remainder thinned out where at all crowded.

## THE BEE-KEEPER.

#### USEFUL HIVES.

THERE is a great and totally unnecessary expenditure in the purchase of hives, which, good in themselves, of exquisite workmanship, ornate in design and perfect in every detail, present it is true a great contrast to many of the rough boxes if beauty alone is taken into consideration, which, however, care being taken to have the inside measurements correct, are quite as useful and much less expensive than their more meretricious relations. Beauty in design and work is not, it must be understood, despised, but as the manufacture of a perfectly finished hive takes much longer and requires a greater degree of skill in the workman than one more roughly completed, so much higher will the price of the former be than of the latter. Hive makers do not, in the majority of cases, taking into consideration the risks they run and the great outlay often necessitated, charge exorbitant prices for their appliances. Their prices are, it may even be said, moderate when we consider the time and skill bestowed upon the little palaces they turn out. What I desire to impress upon all readers interested in apiculture is, however, that we poor bee-keepers do not require palaces, but are quite content to use a hive of far less pretensions, and only require careful attention to detail in respect of measurement and fittings, and, this being given, can easily dispense with all useless ornamentation or tricky devices, which, when the hive is untenanted seem likely to assist the bee-keeper, but when the attempt is made by their aid to manipulate a stock are a source of trouble and annoyance. In these days of keen competition cheap yet serviceable hive are a *sine quâ non* in every apiary, and a few shillings extra outlay on a hive may make all the difference between a balance-sheet showing success and one showing failure.

It has always appeared that one shilling for each standard frame is a fair price to give for a wooden hive. It is sufficient to ensure good workmanship and sound material, and these are perhaps the two essential points to which the greatest



attention must be paid by a purchaser. I am able to buy hives with double walls all round, floorboard, section crate ready for use, and roof of depth sufficient, it is true, for one crate of sections only, but the remedy for this defect can most easily be supplied at home; at this price and after testing such a hive for the last three years, with no attention bestowed upon it except an annual coat of paint, I am perfectly satisfied that such a hive is all that is required, and will last equally as long as any that it has been my fortune to come across in my visits to neighbouring apiaries.

There are numerous "best" hives in existence, so many that it is impossible to award the palm with certainty to any individual one; but of this I am convinced, that too much stress is laid upon the hive and too little upon the skill of the owner. What more can be desired beyond an ordinary hive of sufficient capacity? Do frames parallel with or at right angles to the entrance make so great a difference to the health of the bees? One credulous observer even ventures to hazard the idea that foul brood may be induced by the position of the combs, while others say that one position is more natural than another. But of such fanciful ideas no notice need be taken, except to hope that common sense will come to the rescue and lead those who hold such ideas from their untenable position. Perhaps the most crucial question in connection with hives is the merits of deep and shallow frames. It is said that bees on deep combs lie more quiet in winter than colonies on the shallow frames, and if this is true it is a decided advantage. But it is a matter of common observation that two stocks in hives of identical description, will, the one be restless and active, the other quiet and still; and of this more than one case has come under my notice this winter, which has been a trying one to bees, and in not a few cases fatal. If it was my intention to keep up a large apiary I should not hesitate to adopt the standard frame, not because of any particular virtue it is supposed to possess, but simply on the score of convenience, but whichever size is made use of every frame ought to be of the same dimensions and so interchangeable.

This year I am for the first time using a Stewarton of the improved type, and I have little doubt that it is a hive of great practicality; but the one doubt which has hitherto prevented my using it is the possibility of selling the supers at a fair price. As for using sections on it, it appears to be ill fitted for such a purpose, while on the other hand it is surpassingly perfect in its construction, if ordinary supers are used. But notwithstanding all that has been said and written about various kinds of hives it is still my opinion that a large straw Pettigrew is one of the most efficient of hives. If swarms are desired it gives the earliest and the largest; if supers are desired, sections or other supers can be obtained with great ease and in quantity; for wintering they cannot be excelled; for the cottager who has but little time to devote to bees they are the easiest to manage, the surest to give a profit, necessitating least outlay, a minimum of trouble, and the greatest satisfaction and pleasure.

It seems a forlorn hope to expect to persuade bee-keepers that a hive with fixed combs can be a profitable one. They like to play with their bees, examine them and pry into the secrets of the hive, and think they are increasing their profits. If they are content to follow where some unwisely lead, I can only lift up a solitary voice in opposition, and wait until a return is made to the old methods, and a fresh revolution in apiculture is announced. Already the American bee-keeper, with his accustomed shrewdness, sees the fallacy of moving single frames, and is introducing a hive by which with one movement only a whole set of frames may be manipulated, and this if I am not mistaken is a small cloud on the horizon, betokening a speedy change in the position taken up by advanced bee-keepers since the moveable-frame hive was first prominently brought into notice. Time alone can prove the right, and, if by a few words of advice the return of a wanderer is hastened to the more certain way to success my end has been attained.—FELIX.

## HONEY PRESS WANTED.

ALTHOUGH generally setting ourselves against the multiplication of bee-keeping appliances, we cannot help expressing the want we have often felt of a handy honey press. Small producers who cannot afford a honey extractor, and those who only use straw hives, know with what difficulty anything like a good article of strained honey is procurable. The usual plan of breaking up the comb and leaving it to drain through cheese cloth is only a degree better than squeezing it by hand. In either case, in spite of precautions, the pollen will get broken up and impart its unwelcome flavour to the honey; and the case is still worse when, as is the case of heather honey, the honey is too thick and heavy either to drain of itself or to be squeezed out without being heated.

In the case of heather honey, in fact, nothing but squeezing will separate it from the comb, the extractor being perfectly useless.

The Caledonian Apian Society for years offered a prize for an "extractor" for heather honey; but, so far as we know, no award was ever made. The only exhibit we ever saw for this prize was not an extractor, but a presser or ejector, consisting of a cylinder and piston—a screw press, in fact—which took a very small piece of comb each time, and was besides offered at a price practically prohibitive. No doubt it would work in its own way, but a first glance showed a radical error in construction—the comb had to be placed flatways in the bottom, and the piston on descending had to burst the whole of the cells at once, the honey from those in the centre having to find its way through all the ruptured cells to the circumference. No wonder a powerful screw was required.

We would suggest to our ingenious subscribers our own ideas of what a honey presser should be like, hoping that a serviceable article may be evolved ere long. In the first place it should be made to receive the comb so that the pressure may act on it edgewise—that is, in the plane of the midrib. Thus the cells would receive the pressure consecutively, and a gradual easy pressure would do. The cells would then burst as they ought, only at their cappings, and the honey escape without having to pass through other cells, some of them, it may be, containing pollen.

We would make it to take pieces of comb about the size of that contained in a 1 lb. section—that is, the sixth part of a standard frame of comb. For this purpose a strong receiver with perforated sides would be requisite, and measuring, say,  $5\frac{1}{2}$  by 4 by  $1\frac{1}{2}$  inches, and a piston or plunger of solid hard wood, only a shade less. The plunger should, we think, be easily worked by means of a lever like a small pump-handle, only having its fulcrum at its extreme end.

The other requirements are an arrangement for removing the crushed comb, convenience for receiving the honey as it is pressed out, and a simple framework to hold all in a convenient position. We have our own ideas as to how these details may be carried out, but doubtless these will suggest themselves to any who really understand what is wanted. We only add that the whole apparatus should be so cheap as to be within the reach of our average bee-keepers. From experiments already made we are satisfied that with such a press the honey would be of the purest quality. The single squeeze given to the comb in the position we suggest does not break up the pollen so as to mix it with the honey. Who is going to give us a cheap and reliable honey press?—W. R. (in *British Bee Record*).

[HONEY PRESSER.—SHOWS AND JUDGING.—That there has been a great amount of knowledge in bee-keeping diffused through bee and honey shows cannot be doubted, but on the other hand there has been a considerable amount of injustice at them no person but those interested will attempt to deny. At the first Crystal Palace Show held in London gross injustices were not only attempted, but carried out to the very letter by the managers. At the first Caledonian Apian Society held in Glasgow the Judges were allowed to adjudicate and award the prizes to their own exhibits, which is not only unjust but misleading. At that Show a prize was offered for the cheapest storifying hive; two competed for the prize, the one was entered at 12s. 6d., while the other was entered at 34s. 6d.; the latter was in no way superior to the former, yet it was awarded the first prize. We have seen much written and heard much spoken about adulterated honey. Two gentlemen, members of the British Bee-keepers' Association, whose names I mercifully conceal, acted as Judges at a show where I was present, awarded every prize with one exception to pure sugar, in spite of my warning that it was sugar, and it was afterwards proved to be sugar.

In one case I saw two different hives compete in different classes, and the one that obtained the first prize in class A was beaten by the same hive in class B. There was no difference in make or price of any of these hives in either class, and the Judges were the same. There was an objection made to the losing hive in class A that it was "too dear for general use;" but it so happened that it was 10s. cheaper than the other, and appeared in printed letters underneath the ominous words, "too dear for general use." In class A three hives competed, but there were fourteen in class B. In class C awards were made even more glaring. Some of the best hives were not even opened. Along with two other persons I officiated as Judge at a show where we had great difficulty in awarding the prizes to the most deserving through the interference of one of the Committee in charge, and because we would not be influenced by him he disallowed the opinions of the Judges to appear in the press. I observed he took a special interest in bee furniture, and busied himself in recommending it to customers.

If shows are to be productive of good they must be conducted on equitable principles, and the judges appointed above suspicion, having a thorough knowledge of what they adjudicate on. "Honesty, justice, and truth" should be their motto, without which, and in the absence of any of



these properties, the shows will end in failure, and be a source of discontent, acrimony, and animosity, and will otherwise totally defeat their object.

In the report of the Caledonian Apian Society which appeared in this Journal, July, 1884, it was shown that the prize for a heather honey-extractor was withheld because it was not an extractor but a presser. I believed at the time, and my opinion is not altered, that the prize was withheld through prejudice or ignorance. Upon this subject the article prefixed to these notes, taken from the "British Bee-keepers' Record" for February 1st, is misleading and untruthful. Bee-keepers who are acquainted with the subject will agree with me that the consumers of hand-pressed honey will hail with delight the departure from hand-pressing to the more cleanly and more profitable system of extracting honey by mechanism of some sort.

But what is an extractor in its proper sense? There are hundreds of ways of extracting, but the most difficult thing to extract from a prejudiced person is truth. Now I consider that whatever the means used to extract may be, if it performs the work it is an extractor. It will be observed that "W. R." does not hesitate to call the presser an ejector, which is a name more appropriate for the centrifugal machine than extractor, which "W. R." admits is right, but which is in reality neither more nor less than an ejector, which he admits the presser has a claim to. I know some little about the laws of motion and the effect it has on loose atoms, by throwing them off in a straight line until they are altered in their course by some intervening body, but I fail to see where centrifugal force has the claim of being an extractor, even so much as the presser has; the greatest difference being that the former preserves the combs from being totally crushed, as is the case with the latter. "W. R." says the price was "practically prohibitive." Why does he not state what the price was? and how does he know whether the price is prohibitive or not? seeing he has no experience with such useful instruments, which hundreds can testify by taking nearly the whole of the honey from the combs in a pure state free from pollen, and not, as "W. R." unjustly says in his third paragraph, "No wonder a powerful screw was required." When "W. R." gains experience in the pressing of honeycomb he will learn that to extract the honey a powerful screw is required, and that but in a short time hence he will be singing its praises, in the same fashion he is doing with tiering hives, which he not so very long since did all he could to disparage. When the honey press was adjudicated on it had written instructions attached. There are also instructions in my "Essay on Bees," as well as in back numbers of this Journal. Now why "W. R." tries to disparage the press by making the false statement after the publication of those instructions is best known to himself. For him to say "that it would work in its own way, but a first glance showed a radical error in construction, the combs had to be placed flatways in the bottom," is as great an error as can well be.

The fifth paragraph's suggestions have nothing to recommend them by the way of novelty or utility. The "pump handle" was suggested by Mr. Pettigrew many years since, and forty years ago I had such a machine, but had to add the screw before it would work satisfactorily. When any improvement is attempted in instruments or machines these must be built upon what was gone before, and not to go back fifty or more years, as "W. R." has done. Then teachers should stick to the truth and be in full knowledge of what they attempt to teach, and, above all, do not make misrepresentations and misstatements. The quality of the honey extracted by the press is of fine quality, free from pollen or its flavour, and where there are only 100 lbs. of honey to press will clear the price of the press.

Last year, after A had extracted all the honey he could from some three or four hives by the old process, Mr. B called at his house, saw the combs about to be consigned to the melting pot, requested him to be allowed to try his press on the drained combs of A, who consented. Mr. B set to work, and in a short time pressed out 50 lbs. of good honey, which would have been lost but for the "powerful screw." Any attempt to extract honey by the proposed plan to press out the honey with a "single squeeze," will be found on trial to be very defective. The Lanarkshire honey press is complete in every detail, possessing everything and more "W. R." suggests, which he knows, at least should know. I send herewith a letter from one of the most successful bee-keepers in England, showing how well he is pleased with it, which is but one of many similar, all of whom speak in the highest terms of praise of the presser. I would indeed be very sorry were it otherwise after what I have written about it, and advised so many to purchase one. I therefore hope that any person who is in want of a good and cheap honey presser will not be deterred from purchasing one by "W. R.'s" unfair and untruthful article. Believing in the fact that there are men of more experience than "W. R." at work, and better adapted to improve on the presser than he can be expected to be, or he surely would not have concealed his ideas. Before a man condemns anything he should first show his improvements, thereafter he has a right to criticise and condemn anything inferior.

In the last trial I made with my presser, after all was in readiness 12 lbs. of pure honey free from taint of pollen was canned in fifteen minutes, suggestive that the presser as it stands is a very efficient instrument, and will not be readily improved upon, neither will it be thrown out of repute by any such misrepresentations as made by "W. R." In the interest of all concerned, I advise them not to use sections when drained honey is the object, as "W. R." advises; but either frames or supers, as sections reduce the yield of honey greatly. I shall be glad to advise all bee-keeping readers of this Journal, as well as "W. R.," how to get along in extracting honey and all other matter relating to the apary, and

take this opportunity of doing so by telling them that a presser wrought with rack and pinion, which I have had, is cheap and much superior to a pump handle for extracting thick honey from combs, at least it appeared so to—A LANARKSHIRE BEE-KEEPER.

[LETTER.]

"The weather is very bad for the bees; yesterday especially was a very bad day, and many bees were lost. To-day again is very bright and warm in the sun, and I fear lots will find a frosty grave. I scarcely like to interfere for fear of making matters worse, but I have thoughts of trying to hang cloths of some sort in front of the hives to keep off the sun's rays. I think my stocks are so far very strong. Have you ever weighed your hives from time to time during winter to see exactly how much food they consume? I weighed some hives on October 1st and again on January 1st, and the reduction in weight was as under:—1, 4½ lbs.; 2, 7½ lbs.; 3, 5 lbs.; 4, 4½ lbs.; 5, 6 lbs.; 6, 4½ lbs. This shows an average consumption of about 5½ lbs. per hive for the three months of October, November, and December, or rather less than 2 lbs. per hive per month. This seems very little, but of course less is consumed at this time than at any other, as no breeding is going on and the bees are quiet. I have not yet weighed them for January, but intend doing so, and shall weigh them every month. I expect the consumption will increase very rapidly, for breeding will soon be general. When we get milder weather I shall be tempted to look into some of them, but I am a great advocate for leaving them alone. Will you some day let me know where I can get the best honey presser, like the one you kindly lent me, and the price?—FRANK TAYLOR."



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CORRESPONDENTS.—We desire to assure those of our correspondents whose letters and communications are not promptly inserted that they are not the less appreciated on that account. Our pages are practically filled several days prior to publication, and letters arriving on Wednesday morning, except by special arrangement, are invariably too late for insertion. The delay in the publication of some of these is not of material importance, but reports of meetings and shows held a week previously lose much or all of their value if not received in time to appear in the current issue.

Chrysanthemums (*F. W.*).—There is no better information on Chrysanthemum culture than has appeared in our columns. Possibly Mr. Iggulden's pamphlet might be of service to you, and it can be had from this office, price 9½d. post free.

Lifting Vines (*J. C., Somerset*).—As we have repeatedly stated, Wednesday's letters can only be answered very briefly if at all in the current issue. It is not necessary to dig up your Vines to see if the border needs draining. Dig a few "trial holes" 3 feet deep, and if the soil is not very wet at that depth the site will be naturally drained. If you dig up the Vines the roots must be laid in moist soil immediately, as if allowed to get dry by exposure to the air, either during the process of lifting or afterwards, much damage will be done that will not be easily remedied. If you lift the Vines you must act at once, every day's delay being dangerous at this season of the year.

White Cineraria (*W. G.*).—Your variety is a very beautiful one, and we should advise you to increase your stock. The safest way will be by offsets as you have done hitherto, but if the plants are grown quite away from other Cinerarias you might succeed in getting seed to reproduce the strain. Exhibit a plant at one of the leading horticultural exhibitions, or send a specimen of the flowers to one of the meetings of the Royal Horticultural Society's Floral Committee.

Twin Cyclamen Flower (*J. D., Thirsk*).—The flower is very peculiar, and seems to be the result of the cohesion of two blooms, a kind of fasciation which is frequently seen in other plants. The plant is certainly worth preserving for its singularity, and it will be interesting if the character becomes permanent.

Budding Apples (*Inquirer*).—Buds are inserted in the sides of the upright stems of the young stocks in summer, when the buds are formed in the axils and the wood a little firm, yet not so much so that the bark does not rise freely, both to enable the buds to be removed and inserted. This generally occurs in August, but more depends on the condition of the growths than on any mere date for performing the operation. The work



is done the same as in budding Roses, the insertions being mostly made on the shaded side of the stocks.

**Removing Roses (Fourteen-years Subscriber).**—If there is no stipulation in the lease relative to the removal of plants and trees it is questionable if your employer can legally disturb the Roses. It is not customary, however, for owners of property to enforce the law in respect to the removal of flowering plants that a tenant may have inserted, and an amicable arrangement can generally be made on an equitable basis. In the absence of any written agreement to the contrary, however, everything a tenant, not being a nurseryman or florist, may plant belongs to the freehold, and he has no right to remove even a row of Box edging.

**Camellia Leaves Curled (Cineraria).**—There is nothing whatever the matter with the green leaf you have sent, which is fairly good in substance and colour, while the marbling on the other is an accidental occurrence that cannot be accounted for. We have very little doubt that the variety to which you refer is imbricata, the leaves of which are usually more or less twisted, and we have often seen a few marbled on the most healthy plants, some of the blooms being occasionally marbled also. If the tub is quite full of roots top-dressings of soot and a sprinkling of bonemeal well watered in will be beneficial. When the drainage is effective, as it should be, and roots active, Camellias require much water. If you can remove a portion of the top soil without materially injuring the roots and add fresh compost, this would encourage the production of fresh roots. Turfy loam not containing lime, with a sixth of dried cow manure and a sprinkling of wood ashes and bonemeal, will be suitable for top-dressing, pressing it down firmly.

**Disbudding Vines (F. J.).**—When the laterals are firmly established in position and no longer liable to be broken in securing them to the wires, these laterals being about 18 inches apart, no fresh growths will be required between them, and it will be better for the Vines if there is none. Much harm is done by having too many growths from the main rods of Vines, this preventing the due expansion of the foliage, and when the leaves cannot develop under the full influence of light they cannot elaborate the crude sap supplied by the roots and store nutriment for the support of the Vines. Future growths are produced from the buds at the base of existing laterals after these are pruned in the ordinary course. We told you before to make sure of the safety of the permanent laterals before removing all the superfluous growths. You may pinch some of them if you wish provided the foliage of the others is not shaded or crowded. With good soil and attention Liliums with bulbs  $4\frac{1}{2}$  inches in diameter may be well grown in 7-inch pots, but as you are absent a good deal your plants would be less liable to suffer by want of water in summer in 8-inch pots. You may let all the stems flower, affording the plants adequate support.

**Decorative Fuchsias and Pelargoniums for Winter (An Inquirer).**—Your question is too vague to permit of a definite answer. Some varieties of Fuchsias are specially suitable for decoration as small plants; others as large specimens. Then there are double and single varieties, and so much dissimilarity in colour that half a dozen varieties that would suit one person would not be admired by another. In the trial of old and new Fuchsias at Chiswick last year the following were certificated as the best decorative varieties:—Single, light sepalled—Prince Alfred, Lady Heytesbury, Ellen Lye, Erecta Von Novelty, and Miss Bright. White corollas—Artaban and Berliner Kind, double; and Flocon de Neige, single; Salmon, Madame Aubin, Mrs. Rundell, and M. Dufaire. Single dark corollas—Dr. Sankey, Crimson Globe, Charming, President, and Minerva. Double dark corollas—Avalanche and Phenomenal. Possibly you have some of those, and you cannot err in obtaining the others. The following are six good single and six double winter-flowering Zonal Pelargoniums:—Ajax and Plutarch, scarlet; Octavia, crimson; Imogene and Swanley Gem, salmon; Kate Greenaway and Eurydice, pink. Doubles—Col. Flatters and Boule Noir, crimson; Mrs. Cardon, cerise; Lord Derby, pink; F. V. Raspail, scarlet; and Lord Mayor, purplish crimson.

**Shamrock (R. H.).**—The botanical name of this is *Oxalis acetosella*, the common Wood Sorrel, or Shamrock. The plant is a native of the moist shady woods of this country, Europe, and North America, and is one of the most elegant of wild flowers. It delights in retired shady woods, groves, and hedges, and flowers in April or May. It was called by the old herbalists Alleluja and Cuckoo's Meat, because, as Gerard says, "when it springeth forth, the cuckoo singeth most; at which time also Alleluja was wont to be sung in our churches." But Alleluja is merely a corruption of the Calabrian name Jnliola. The whole plant has a grateful acid taste, much more so than the common Sorrel, and is on that account used in salads and in sauces. In Lapland it is plentiful that Linnaeus says the inhabitants of that country take scarcely any other vegetable food than Sorrel and Angelica. The expressed juice of the plant is employed to remove spots and iron moulds from linen; and this it does by the great quantity of binoxalate of potassa which it contains. Twenty pounds of the fresh leaves have been found to yield six pounds of juice, from which two ounces two drachms and one scruple of salt, besides two ounces and six drachms of an impure saline mass are obtained, and is sold under the name of salt of Sorrel and essential salt of Lemons.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (P. C.).—The Daffodil is *Narcissus incomparabilis*, the Eupatorium is *E. riparium*. (G. R.).—The numbers were not secured to the flowers, so that we cannot give them with the names. The white flower with red in the throat is *Dendrobium Draconis*, also known as *D. eburneum*. The yellow and brown spotted flower is apparently a small variety of *Odontoglossum luteo-purpureum*, and the other is *Ceologyne ocellata*.

#### COVENT GARDEN MARKET.—MARCH 24TH.

Trade very quiet. Grapes easier; also Strawberries. Cucumbers well cleared at low prices.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	$\frac{1}{2}$ sieve	2 0 to 3 6	Oranges .. .. .	100	4 0 to 6 0
" Canadian ..	barrel	10 0 12 6	Peaches .. .. .	per doz.	0 0 0 0
" Nova Scotia ..	"	10 0 12 6	Pears, kitchen ..	dozen	1 0 1 6
Cobs, Kent .. ..	per 100 lbs.	27 6 30 0	" dessert .. ..	dozen	0 0 0 0
Figs .. .. .	dozen	0 0 0 0	Pine Apples English ..	lb.	1 0 1 6
Grapes .. .. .	lb.	5 0 8 0	Plums .. .. .	$\frac{1}{2}$ sieve	0 0 0 0
Lemons .. .. .	case	8 0 10 0	St. Michael Pines ..	each	2 0 6 0
Melon .. .. .	each	0 0 0 0	Strawberries .. ..	per oz.	0 6 0 0

#### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	dozen	1 0 to 0 0	Lettuce .. .. .	dozen	1 0 to 1 6
Asparagus .. ..	bundle	2 0 8 0	Mushrooms .. ..	punnet	0 6 1 0
Beaus, Kidney ..	lb.	2 0 0 0	Mustard and Cress ..	punnet	0 0 0 0
Beet, Red .. ..	dozen	1 0 2 0	Onions .. .. .	bunch	0 3 0 0
Broccoli .. .. .	bundle	0 9 1 0	Parsley .. .. .	dozen bunches	2 0 3 0
Brussels Sprouts ..	$\frac{1}{2}$ sieve	6 0 8 0	Parsnips .. .. .	dozen	1 0 2 0
Cabbage .. .. .	dozen	3 0 4 0	Potatoes .. .. .	cwt.	4 0 5 0
Capiscums .. ..	100	1 6 2 0	" Kidney .. ..	cwt.	4 6 5 0
Carrots .. .. .	bunch	0 3 0 4	Rhubarb .. .. .	bundle	0 2 0 4
Cauliflowers .. ..	dozen	2 0 3 0	Salsafy .. .. .	bundle	1 0 0 0
Celery .. .. .	bundle	1 6 2 0	Scorzonera .. ..	bundle	1 6 0 0
Coleworts .. .. .	doz. bunches	2 0 4 0	Seakale .. .. .	per basket	2 0 3 0
Cucumbers .. ..	each	0 3 0 5	Shallots .. .. .	lb.	0 3 0 0
Endive .. .. .	dozen	1 0 2 0	Spinach .. .. .	bushel	6 0 8 6
Herbs .. .. .	bunch	0 2 0 0	Tomatoes .. ..	lb.	0 9 1 0
Leeks .. .. .	bunch	0 3 0 4	Turnips .. .. .	bunch	0 4 0 6

#### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0 to 18 0	Ficus elastica ..	each	1 6 to 7 0
Arbor vitae (golden)	dozen	0 0 0 0	Ferns, in variety ..	dozen	4 0 18 0
" (common) ..	dozen	6 0 12 0	Foliage Plants, var.	each	2 0 10 0
Arum Lilies .. ..	dozen	9 0 18 0	Genistas .. .. .	dozen	10 0 12 0
Azaleas .. .. .	dozen	24 0 42 0	Hyacinths .. ..	dozen	6 0 9 0
Begonias .. .. .	dozen	0 0 0 0	Lilies of the Valley, in		
Bouvardia .. ..	dozen	12 0 18 0	clumps or pots, per doz.	15 0	30 0
Cineraria .. ..	dozen	10 0 12 0	Marguerite Daisy ..	dozen	8 0 12 0
Cyclamen .. .. .	dozen	12 0 24 0	Myrtles .. .. .	dozen	6 0 12 0
Cyperus .. .. .	dozen	4 0 12 0	Palms, in var. ..	each	2 6 21 0
Dracena terminalis,	dozen	30 0 60 0	Pelargoniums, scarlet,	doz.	6 0 9 0
" viridis .. ..	dozen	12 0 24 0	Primulas, single,	dozen	4 0 6 0
Erica, various ..	dozen	12 0 24 0	Solanum .. .. .	dozen	8 0 12 0
Eunymus, in var.	dozen	6 0 18 0	Spiraea .. .. .	dozen	12 0 18 0
Evergreens, in var.	dozen	6 0 24 0	Tulips .. .. .	12 pots	6 0 9 0

#### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. ..	12 bunches	0 0 to 0 0	Lilium longiflorum, 12 blms.	0 0 to 0 0	
Acacia (Mimosa), Fr., per			Lily of the Valley, 12 sprays	0 9 1 6	
bunch .. .. .	1 0 1 6		Marguerites .. ..	12 bunches	6 0 8 0
Arum Lilies .. ..	12 blooms	4 0 6 0	Mignonette .. ..	12 bunches	3 0 6 0
Azalea .. .. .	12 sprays	0 6 1 0	Pelargoniums, per 12 trusses	1 0 1 6	
Bouvardias .. ..	per bunch	0 6 1 0	" scarlet, 12 trusses	0 9 1 0	
Camellias .. ..	12 blooms	2 0 5 0	Poinsettia .. ..	12 blooms	0 0 0 0
Carnations .. ..	12 blooms	1 0 3 0	Roses (indoor), per dozen	3 0 9 0	
Chrysanthemums 12 blooms	2 0 4 0		" Tea .. .. .	dozen	2 0 4 6
" .. .. .	12 bunches	9 0 18 0	" red, French ..	dozen	2 0 4 0
Cyclamen .. ..	doz. blooms	0 4 0 9	Spiraea .. .. .	12 sprays	1 0 0 0
Epiphyllum .. ..	doz. blooms	0 6 0 9	Tropeolum .. ..	12 bunches	2 0 3 0
Eucharis .. .. .	per dozen	4 0 8 0	Tuberose .. .. .	12 blooms	8 0 0 0
Gardenias .. ..	12 blooms	6 0 18 0	Tulips .. .. .	dozen blooms	0 9 1 0
Hellebore .. ..	doz. blooms	0 0 0 0	Violets .. .. .	12 bunches	1 0 1 6
Hyacinths, Roman, 12 sprays	1 0 1 6		" Czar, Fr., ..	bunch	1 6 2 0
Lapageria, white, 12 blooms	0 0 0 0		" Parme, French, per		
Lapageria, red .. 12 blooms	1 0 2 0		bunch .. .. .	4 0 6 0	



#### MANGOLDS.

NEVER was there a spring in which the value of root crops could be more fully realised than that upon which we have just entered, and perhaps there never was a greater scarcity of roots since Mangolds came into general cultivation. We have had a long cold winter, and frost, snow, and keen nor'easters still linger with an icy grasp upon the land, so that all growth has been kept back, and we have had to maintain our flocks and herds with home-stored or purchased food, with very little help from pastures or other green crops. March and April are the months when our plans of a year ago for a provision of winter and spring food are put to the test. Let us therefore now look closely into results, carefully marking all faults and shortcomings, in view of doing all we can now to avoid failure in the future. Granted the truth of the assertion that we cannot command success full and ample in a calling so subject to and dependant upon the influence of the weather as farming undoubtedly is, yet it must be owned that by high and timely culture we may in no inconsiderable measure do much to avoid the injurious effects of unkind seasons.



Here, then, are one or two lessons which were again enforced by the disastrous drought which again prevailed so generally last summer. If you wish to do what is possible to insure a useful crop of Mangold sow the seed early in April in carefully prepared soil. The land must have sufficient drainage either naturally or artificially; it should be ploughed early and be free from foul weeds. The first week in April sow broadcast upon each acre of it a carefully prepared mixture:  $\frac{3}{4}$  cwt. nitrate of potash,  $1\frac{1}{4}$  cwt. nitrate of soda, 2 cwt. steamed bone flour, 1 cwt. ground coprolite, 1 cwt. common salt. Stir this well into the surface with harrows or expanding horse hoes, and then make furrows 2 feet apart with double-breasted ploughs for farmyard manure, of which 14 tons per acre is the quantity given by a high authority. Farmyard manure is such a greedy absorbent of water that we consider the measurement of any quantity of it by weight a mistake, and in this instance it is better for practical purposes to say that the furrows should be about half filled with it. Following the manure carts come the double-breasted ploughs under the middle of each ridge, throwing the soil into the furrows over the manure on each side of it; the seed drill follows, inserting the seed along the top of each ridge, the soil on the tops of the ridges being immediately afterwards pressed by a light roller. The seed is thus left to germinate in deep soil well stored with fertility. A free strong growth follows germination, and it is well sustained as the plants gain size, for the roots soon go downwards into the farmyard manure, finding there gaseous food to promote growth, and moisture to sustain it in unchecked vigour through all the vicissitudes of heat and drought.

Compare this well-tried system of ridge culture with sowing on the flat, and surely the advantage must be seen at once to be so clearly in favour of the ridge that general preference must be given it. We have had objection taken to the cultivation of Long Red Mangolds on the score of shallowness of soil, and that the huge roots absorb so much nutriment from the soil. We have proved in our own practice repeatedly that ridge culture meets the shallow soil difficulty, and it must be owned that the Long Red gives as well as takes, its great bulk affording us an ample return for what extra nutriment it may absorb from the soil, if indeed it does so. It is quite possible, or rather it is absolutely certain, that the numerous large leaves of this particular sort of Mangold derive much nutriment from the air; and we again remind our readers of the important fact that 93 per cent. of plant food is derived from the air. Let it also never be forgotten that the soil is a medium for conveying food to plants. It absorbs nutriment to be taken up by the roots, and we have only to replace that nutriment in it for the next crop very much in the manner already described in this paper.

If, however, objection be taken to Long Red Mangolds on the score of size, what are we to say to that favourite sort of Eastern County farmers, Yellow Globe? In Messrs. Webb's new catalogue they figure huge globular roots labelled with weights ranging from 41 to 47 lbs. each; they also tell us of roots of Long Red reaching the extraordinary weight of 62 lbs. Well done! say we; and instead of shrinking from the cultivation of either sort, let us see in the coming season if by high-class ridge culture we cannot approach these sensational results. Depend upon it, the roots of every sort of Mangold will be of a size proportionate to the condition of the soil and the system of cultivation to which they are subjected. There are plenty of inferior crops of both Yellow Globe and Long Red to be met with every season, and in its way a crop of Mangolds affords as fair an indication of a farmer's ability as does a crop of Oats. Sow Oats in poverty-stricken soil, and you may have a crop in miniature 6 inches high at harvest time; sow Oats in fertile soil, and you may have the straw full 6 feet high laden with huge panicles of grain. This reasoning by the light of results holds equally true of Mangolds, and depend upon it good culture goes very far to insure a crop of good roots even in

the most unfavourable seasons. Let us have large roots, say we, and plenty of them, and we care not for a little exhaustion of soil in the production of them; nor do we care to be hypercritical about the exact percentage of water in such roots, for we only use them as a wholesome and fairly nutritious article of our mixed dietary for all the animals of the farm.

#### WORK ON THE HOME FARM.

Since writing our last note corn-sowing and spring work generally has been kept in abeyance by the extraordinary duration of winter weather. No growth of meadow grass or Rye yet gives promise of food, even for the flock, and the strain upon our stored food continues heavy. We fortunately have ample supplies—so ample, that we have some fine hayricks for sale, but we have not been eager to sell, as notwithstanding the heavy hay crop of last year, prices must have an upward tendency now. We hear of such keen competition for any roots brought into the market that Mangolds have risen to 25s. per ton. Both ewes and lambs are looking remarkably well, notwithstanding the coldness of the weather. Careful tending and plenty of good nourishing food tells among them, and the forward lambs already give fair promise of early and profitable maturity. We expect no large profit, for assuredly we should not get it if we did, but we do strive to obtain quick returns upon capital expended, and are content if we can only secure a modest margin of profit. Our expenditure upon artificial manures mounts up in the aggregate to a considerable sum, but knowing as we do such an outlay to be both safe and necessary, we have no hesitation in making it. Only before doing so a careful inspection of accounts, and a calculation of our prospective receipts and expenditure till next harvest was made. The last batches of winter pigs will be sold in the course of the next week or two. These pigs were not sold as porkers, owing to their large frames and tendency to grow fast rather than to fatten quickly into the nice compact chubby little pigs termed "Londoners" in the south-eastern counties, from the eagerness with which they are bought up for the great metropolitan meat markets. The larger pigs keep over, for bacon pigs sell for about £4 apiece, and are profitable, though slower in ripening for market. We desire to part with all of them now, as we have so many batches of spring pigs requiring the stys. As we have before said, it is a profitable and wise course to keep pigs to eat inferior corn, but the idea is no new one, for what says old Tusser?

"If vent of the market place serve thee not well,  
Let hogs up a-fattening, to drover to sell."

Among farm buildings recently erected we have had a nice snug range of stys built for breeding purposes. Advantage was taken of an angle on the south and west side of two old buildings, and so the expense of a back wall was avoided. A roof of corrugated galvanised iron, boarded sides, fronts, doors, and partitions, floors of burnt clay rammed hard, and all the woodwork dressed with hot tar, comprise the chief details of a cheap and useful range of buildings. We have on one of our farms a large commodious lodge, divided into convenient pounds, with a passage between them and an open yard in front of it. No doubt it is all very nice, but we regard such a building for pigs as both wasteful and unnecessary, and we certainly cannot afford to indulge in any such waste of money upon mere appearance.

SPRATTS PATENT.—We are desired to state that this firm has opened a sale room at 4, Great Tower Street, City, E.C. The room is in direct telephonic communication with the works, and contains samples of the various foods, medicines, and appliances.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain
1886.  March.		Baromet- er at 32 1/2 and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In snn.	On grass		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday .....	14	30.281	32.4	29.5	N.E.	33.4	35.5	29.2	51.4	25.8	—	
Monday .....	15	30.042	33.4	30.9	E.	33.4	38.4	28.5	65.4	23.8	—	
Tuesday .....	16	30.849	32.4	31.2	N.	33.4	39.3	25.1	69.2	20.0	—	
Wednesday ..	17	29.910	32.0	30.8	N.E.	33.4	40.8	22.9	65.8	17.3	—	
Thursday ....	18	30.020	36.3	34.8	E.	33.4	47.2	29.9	62.6	22.8	0.039	
Friday .....	19	30.011	43.3	42.7	Z.	33.3	60.8	36.2	87.7	33.4	0.102	
Saturday ....	20	30.016	49.4	47.9	S.W.	34.8	57.4	43.2	73.4	36.6	0.231	
		30.019	37.0	35.5		33.6	45.7	30.8	67.9	25.7	0.363	

#### REMARKS.

14th.—Cloudy, with a little sleet about noon.  
15th.—Cloudy morning, bright afternoon, snow in evening.  
16th.—Cloudy morning, with flakes of snow till about 11 A.M., then fine with some sun.  
17th.—Fine, with sunshine in morning.  
18th.—Overcast early, bright till noon, slight rain later.  
19th.—Fog till 11 A.M.; fine, bright, and warm till 2 P.M., then cloudy with rain from 4 P.M.  
20th.—Overcast till about 10.30 A.M., fine after.  
On March 19th the minimum temperature was, for the first time for exactly a month, above freezing point, and on the 20th the earth 1 foot below the surface began to warm up, having fallen almost uninterruptedly from January 5th, when it was 41° 8', to March 12th–19th, when it was 33° 3' or 33° 4'.





## COMING EVENTS

1	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
2	F	
3	S	Royal Botanic Society at 3.45 P.M.
4	SUN	4TH SUNDAY IN LENT.
5	M	
6	TU	
7	W	Society of Arts at 8 P.M.

### HIPPEASTRUMS.

**I**F old Donald Beaton was right—and it is questionable if any person living can prove him wrong in the matter—all the so-called Amaryllises that flower at this season of the year are Hippeastrums. Thirty years ago in describing a seedling exhibited by Mr. Snow, gardener to the Earl de Grey, at one of the Horticultural Society's meetings, the "Grand Old Gardener" observed, "It is a soft shade between scarlet and crimson, the midrib of each petal being banded with white, denoting a descent from *H. rutilum* and some variety of Johnsoni. Every Amaryllis-like flower with a white band in the middle of the petal is some variety of Johnsoni, the oldest of all these crosses being the issue of *H. regium* and *H. vitellinum*." Mr. Snow's variety was pronounced desirable on two grounds—first, because it was "deliciously sweet in a scentless family;" and secondly, because of the habit—"the leaves coming up half-height simultaneously with the flowers—a not very usual occurrence with this group." He who recorded that "true Amaryllises only grow in the late autumn and through the winter in Europe, while Hippeastrums are under the gardener's control and may be managed to grow at different periods."

A great deal has happened since Mr. Beaton concentrated his attention on this order of plants, and what was regarded as unusual in 1855 is apparent enough now, for a few days ago the forest of spikes in the gorgeous collection at Chelsea were springing from what cannot be better described than an undergrowth of leaves coming up "half-height" with the flowers. Until within the last year or two the bulbs were leafless, and had been leafless for months. They did not "grow in the winter," but were in a state of complete rest, while they were quite under the "gardener's control," and could have been forced into growth at the will of the cultivator.

As it is certainly very desirable that flowers should have the accompaniment of the foliage of plants producing them, an advance has been made in Hippeastrums, for as a rule in the case of plants well managed the flower stems are only in advance of the leaves about a week or so, and when the former are fully developed and the blooms expanded the foliage is about half-height. A grand advance has also been made in size, substance, and symmetry, with richness and diversity of colour; but the other noteworthy virtue above alluded to, "scent," is lacking. If to the magnificent varieties of the present day could be added a "delicious sweetness," hybridisers who have accomplished so much would crown their efforts, for it would almost appear as if there was little room for improvement in other respects. As regards size, a flower 9 inches in diameter, stout in proportion, dazzling in colour, and admirable in form, ought to satisfy even persons of an exacting turn of mind. Still, experts will strive for something better. If they cannot add perfume nor materially enlarge the size of the blooms they will not improbably increase their number. A few years ago

many of the then fine varieties only had two flowers on a stem. It is true that with larger bulbs and good culture some of those varieties subsequently produced three and four flowers from one scape; but there are scarcely any varieties that have not more than two flowers now, not a few having from four to six, many bulbs throwing up two stems supporting ten and twelve handsome blooms. One plant in the collection referred to had fourteen expanded flowers on two stems, not so large as some others—indeed, rather small in comparison; but that is of little consequence, for once a new "character" is fixed the skilled hybridist is not long in making up other deficiencies, such as size and colour. The materials are provided, and he may be trusted to turn them to the best account; yet when 800 plants are massed, the pots plunged closely together in tan in the central bed of a span-roofed house, and most of the plants having two stems, it cannot be said there is any lack of flowers; in truth, there scarcely appears to be room for more, and no one not having seen from 4000 to 5000 of the newest and most handsome Hippeastrum blooms grouped together as if forming a vast bouquet can form a conception of the extraordinary effect produced.

As an example of the colours and character of the flowers a baker's dozen of varieties may be glanced at as typical, not arranged in order of merit, but taken as they stood, in passing round the house. *Titania*, scarlet, deepening to crimson, and barred with white; flowers 6 to 7 inches in diameter, and models of symmetry: *Romula*, crimson, with a suffusion of violet; 8 to 9 inches, a magnificent variety: *Cymba*, maroon, shaded purple, barred white, rich and striking: *Triumphans*, dazzling crimson scarlet, immense blooms of great substance: *Etna*, fiery scarlet, with recurving segments; flowers 7 to 8 inches in diameter: *Juliette*, stately and splendid, ground white, flaked with crimson and scarlet; flowers of great size and substance, probably the finest of its type yet raised: *Garonne*, a fine flower, cerise, mingled with rose, rayed white; unique in its way: *Diomedes*, very dark crimson, of velvety richness; blooms 8 to 9 inches across: *A. F. Barron*, unsurpassed for the intensity of its crimson scarlet, and of excellent form and substance: *Ancona*, distinct, crimson, deeply shaded with violet, white rays: *Emita*, white and cerise, flaked; neat and attractive: *Dunholme*, a wonderful flower, 9 inches across; rich scarlet, veined with crimson, barred with white: and, as completing the long dozen, one of the smallest, yet richest, dark, free, and beautiful, *Lord of the Isles*, dense, reddish scarlet, shading to crimson, and delicately veined. Those will suffice to indicate the nature of the display, which extorted from a visitor whose long residence in America had enabled him to see all that is "great" there, and whose travels made him familiar with tropical vegetation, "Well, well! I thought I had seen most things worth seeing, but I never dreamt of seeing anything like this."

After flowering the pots are covered with tan, heat and moisture being applied to promote a strong growth of roots and foliage, then a warm dry atmosphere is maintained for the ripening process, and in the autumn the growth is gradually dried, the bulbs resting in a temperature of 50° in winter. In the spring they are shaken out, all the old soil being removed, repotted in turfy loam in 5 inch to 7-inch pots, plunged in a very gentle warmth, and brought steadily on in a temperature by artificial means of 55° to 60°. That is the treatment in a nutshell, and they are a credit to the grower, nursery, and nation.—EXPERIENTIA DOCET.

### THE CULTIVATION OF MELONS.

(Concluded from page 203.)

THE restrictive system is the one by which ripe fruits can be obtained in less time than with either of the others. It is also the easiest and best by which a constant supply can be maintained without a break during the Melon-growing months,



with only limited house room at disposal. This takes more plants than the others, as they must be placed about 16 or 18 inches apart. These are trained upright until they reach to near the top of the trellis and then stopped. The laterals as they appear are removed from the axils of the leaves below the first wire of the trellis. Those above this position are stopped at one leaf until the top ones are produced, and upon these the crop of fruit is set. It will thus be seen that the fruit is set on the first laterals towards the top of the plant. The shoots carrying the fruit are stopped one leaf beyond it, and all sub-laterals are removed as they appear. The lower laterals are not allowed to extend beyond the one leaf, so that all foliage the plants carry is fully exposed to light and sunshine, and thus the strength of the plants concentrated into the swelling fruits. With the earliest plants the first female flowers that show are fertilised, so that no time is lost. These are generally set towards the base of the trellis, and very frequently the same plants ripen them and then carry two other fruits on the top. The other plants have to bear a full crop, and the fruits ripen in capital succession if two or three different varieties are planted at the same time. We require a regular supply of fruit, and, therefore, place out about six plants each time at intervals of three weeks or a month, generally the former. From this number there is no difficulty in producing fourteen or fifteen fruits, some carrying two, others three, according to the size of the fruits. The house is a rather wide half-span with seven lights, and contains two rows of plants, one to the front and the other down the centre. This space is occupied with six different batches trained on the system first detailed, except the end plant in each row, which is trained over the walk under the seventh light on the modified extension system. From the number required there is no difficulty in obtaining about ninety fruits, while we have not been able to obtain the same number by about twenty on the modified extension system. On the restrictive principle we never attempt a second crop of fruit from any of the plants without it is the first one or two that bear the early fruits, but generally these are removed, others being planted. This is continued as each batch is removed until we are certain of continuing the supply as long as fruits are needed.

Melons may be grown in pots for an early supply of fruits, and under this system can be produced earlier than by any other means. The plants when ready may be placed in pots 14 inches in diameter and plunged in a hotbed of fermenting material. In this case the bed in the house would be better without the central wall previously advised. The pots should be placed upon bricks or some other similar firm bottom to prevent their sinking after the training upon the trellis commences. The cultivator will do well to adhere closely to the restrictive system.

The soil most suitable for growing Melons is fibry loam of a heavy nature that has been stacked for a few months to destroy the grass. If the loam is from a rich pasture it will not need any addition; otherwise a little decayed manure or horse droppings may be used with it, and about one 8-inch potful of soot to each barrowload of the soil. The last is very good in any case, and may with advantage be used whether the soil is rich or poor. Melons can be well grown in much lighter loam, but with this mix cow manure instead of horse droppings, also a per-centage of clay according to the texture of the loam. The best means of thoroughly incorporating the clay is to dry it and then reduce it to powder. The soil must be thoroughly warm and moist before planting. Either the whole of the soil the plants require may be placed in the bed or border before planting, or the piecemeal system may be adopted. The soil must be made as firm as possible, so that a sturdy growth instead of a quick soft one will result. I do not advocate top-dressing further than placing on the surface a thin layer of cow manure after the fruit has commenced swelling, and then the stems of the plants are never buried. In case a system of top-dressing is practised the collar of the plant should be slightly elevated above the

surface of the soil. The mulching of cow manure will be found of great advantage when Melons are grown in large pots.

Melons require liberal supplies of water; in fact, from the time the seed germinates to the time the fruit commences ripening they should never be allowed to suffer by an insufficient quantity. The system of keeping the plants dry at their roots while the fruit is being set may be considered obsolete. I have never found any benefit result from so doing, but on the contrary have had an attack of red spider. Water is not withheld when the fruits commence ripening, but with varieties liable to crack the fruit is cut and finished on a dry shelf. They are none the worse for such treatment for a few days—in fact, I think they are improved in flavour. While the fruits are swelling liquid manure may freely be given. Syringe twice daily to keep the foliage clean and the atmosphere moist until the fruit is ripe; in fact, no difference is made in the atmosphere even in that stage, or else some of the other batches of plants are liable to suffer. Do not syringe, however, for a few days while flowers are being set.

Ventilate daily after the season has fairly advanced whenever the weather is favourable, but avoid cold draughts. When a close system of culture is practised the foliage is thin and flabby and will not bear the force of the sun's rays, therefore shade of some description becomes necessary. On the other hand, when freely ventilated the foliage is thick, stout and leathery, and not only capable of bearing full sunshine, but will resist the attacks of red spider and other insect pests. We ventilate liberally during the day and maintain a temperature by sun heat of from 80° to 85°. The house should be closed early in the afternoon when the plants are syringed, and the temperature allowed to run up after closing 10° or 15° higher.

When plants are grown in houses trained up wires under the roof, it is necessary to support the fruits by the time they are half swelled, or they will break the shoot from which they are suspended. Nothing is better for this purpose than shallow baskets made in the shape of a saucer, or square pieces of half-inch board with two or three holes bored through them to prevent water resting between the board and the fruit. These are easily secured to the wires by means of thin cord or wire sufficiently low that the fruit can just rest upon them.

Melons are subjected to the attacks of aphides, thrips, and red spider. The two former are easily destroyed by fumigating with tobacco, two or three applications being preferable to one very strong. When this is done the foliage should be perfectly dry, but the floor and lower portions of the house moist. It is a good plan to apply a little shade for a few hours during bright sunshine the next day, and to keep the house moderately close. Red spider will not be very troublesome if the plants are freely supplied with water and liberally syringed; but should it appear it can be quickly eradicated by syringing the plants with a solution of softsoap and water, one ounce of the former to one gallon of the latter in which a handful of sulphur has been stirred. This should remain upon the plants for two or three days and then be washed off.

Perhaps the worst form of disease to which the Melon is subject is canker. This is brought about to a very large extent by the culture the plants receive. Burying the collar of the plant beneath the soil when potting, or by top-dressing, is in some instances the cause, other conditions not being exactly right. There is another disease which for some years gave me endless trouble, and which may be called "rot." This seemed to make its appearance so mysteriously that for a time I was puzzled to determine the cause. At closing time the plants appeared all right, but when the sun shone next day the foliage flagged, and upon examination the stem of the plant was found rotten between two joints, not near the collar but frequently 2 or 3 feet from it. The plants disappeared in nearly all stages of development by this terrible disease, and everything we could think of, as well as the



suggestions of others, were tried, but proved of no avail. At last the cause was discovered to be too low a temperature, although we grew them successfully in another small house with the same temperature, but the house was naturally drier, lighter, and in a much better position. However, the difficulty has been overcome by raising the night temperature 5°, and this disease at once disappeared.

There are so many good Melons that selecting the best is by no means an easy task. Perhaps the best flavoured of all Melons is Dickson's Exquisite, but it is rather shy and liable to crack. It is worth a place and cannot be well excluded. Other good green-fleshed kinds are Colston Basset, William Tillery, Eastnor Castle, Bayley's, and the old Beechwood. White-fleshed kinds, Conqueror of Europe, Best of All, and Cox's Golden Gem, the last being rather thick in the rind, but a splendid keeper; scarlet-fleshed kinds, Read's, and Blenheim Orange. For early work we prefer Best of All, which is succeeded by Conqueror of Europe. For frames the two named, Eastnor Castle and Scarlet Gem, are free hardy varieties.

### HYACINTHS.

[A Paper by Mr. Polman Mooy, read before the Horticultural Club, March 23rd.]

THE Honorary Secretary of the Horticultural Club has invited me to say a few words upon bulbs and bulb-growing in Holland, and feeling anxious to oblige the members I will endeavour to meet your wishes, but the subject has been treated upon so much before that I must request your kind indulgence.

Bulbs or flower roots have for over 250 years been grown and cultivated in the vicinity of Haarlem, and their cultivation has gradually increased in importance until it has reached its present position. Among the admirers and lovers of plants and flowers, bulbous plants have always found many ardent protectors. No doubt the great and constant advance which civilisation has made in nearly all quarters of the world has greatly aided to extend the cultivation of flower roots and increase the demand, even in countries where fifty years ago there was not a single bulb, and where Hyacinths and Tulips were nearly unknown.

An advantage which bulbs have over plants in general is, that they have nearly all a yearly period of rest, when they can without much fear of injury be packed and exported to the most distant places. An advantage worth mentioning is that after they have done blooming and have grown to their full maturity they require only to be placed in a dry locality, and for a considerable time require no labour or attention. A further important advantage of such bulbs as Hyacinths, Tulips, &c., is that by artificial treatment they can be brought to grow and flower several months earlier than they would do when kept out of doors and left to their natural development, which for winter-blooming makes them unequalled by any other family among living plants.

I must mention first of all the much-beloved Hyacinth, as being not only one of the most esteemed among bulbs, but also one of the most beautiful, although at the same time the most difficult in cultivation and the most expensive to bring to perfection. The name of this genus originated with the writers of antiquity. Hyacinthus, a beautiful boy, was the son of a Spartan king and the favourite of Apollo. Zephyrus, being envious of the attachment of Apollo and Hyacinthus, so turned the direction of a quoit which Apollo had pitched while at play that it struck the head of Hyacinthus and slew him. The fable concludes by making Apollo transform the body of his favourite into a flower that bears his name.

The Hyacinth is a native of the Levant, and was first introduced into England in the year 1596; but it was known to Dioscorides, who wrote about the time of Vespasian. Gerard, in his Herbal published at the close of the sixteenth century, enumerates four varieties—the single and double blue, the purple, and the violet. In that valuable book on gardening, "Paradisus in Sole, Paradisus Terrestris," published by John Parkinson in 1629, eight different varieties are mentioned and described. He tells us, "Some are pure white, another is nearly white with a bluish shade, especially at the brims and bottoms of the flowers. Others, again, are of a very faint blush; some are of a deep purple near violet, others of a purple tending to redness, and some of a paler purple. Some, again, are of a fair blue, others more watchet, and some of a very pale blue. After the flowers are past the stem bears a round black seed, great and shining, from which, after sowing and protecting, the new varieties can be obtained." During the 250 years that

have passed since the above was published there has been a steady improvement in the size, form, and colour of the flowers of this plant.

From the eight varieties of 1629 more than 4000 varieties have been produced, of which, however, the greatest number have become extinct or out of cultivation. Many have been thrown out to make room for the latest improved sorts, of which about 200 only are at present subject to extensive commerce.

The Hyacinth is a general favourite in the most extensive application of the word, and the varieties in colours of different shades from the purest white to the deepest shades of scarlet, purple, black, yellow, and violet, are fully equal to that of any other florists' flower. The Hyacinths are usually grown for forcing into flower in the dull cheerless months of winter and early spring, when their delicately coloured flowers and rich fragrance lend a charm not otherwise to be obtained. They are equally desirable for planting in beds or in the garden border.

When looking over the cultivation of Hyacinths in Holland, which I have studied practically all my life, I must say that very great changes have taken place during that period in the taste and opinions of what a good Hyacinth should be; and, as a matter of course, this change has considerably influenced the varieties which have been propagated and grown. About sixty to seventy years ago there was a taste in general for the double-flowering varieties, and more particularly for the flowers with dark or other coloured bold eyes or centres, and I remember the time that a few beds sold by public auction realised very high prices indeed, while the varieties thus sold are not to be found now. These double varieties were mostly very small bulb-producers, which fact contributed very much to their being neglected and to their loss of favour in public estimation; while the considerable increase of trade and (in consequence of this) also increased competition among nursery and seedsmen abroad, stimulated by the feeling of revival in all branches of trade at the fall of Napoleon, brought on a gradual alteration in the Hyacinth fancy, as every tradesman—excited by the competition of his neighbours—was looking out for the largest-sized bulbs among Hyacinths, basing their trade recommendation upon the general but erroneous belief of the general public that naturally the largest bulbs must also produce the largest flower spikes.

The small bulb-producing varieties, however beautiful they might be, could not at that time find buyers, and growers were then compelled to meet the alteration in public taste as quickly as possible, and as this alteration in taste came rather suddenly and much quicker than the slow growth and propagation of the desired sorts could meet prices at that time rose wonderfully high.

In this run after large bulbs among Hyacinths many sorts with very inferior flowers were brought out in quantity; but although these large bulbs did increase the general trade, and so far gratified the tradesmen abroad by a greater sale and more profit, still they did not satisfy the amateurs, and better large flowers were looked after. After large-sized bulbs with large spike of flowers became the demand the single-flowering varieties have been found more capable of giving satisfaction than doubles, and when we compare the large spikes of the present day with the sorts we had sixty years ago we can only be well satisfied at the great progress we have been able to make. Although the double-blooming varieties are at present so much neglected, mostly because of their small-sized bulbs, there are some few double sorts which have pretty well maintained their position in public estimation, but their number is small compared with the large number of single ones in cultivation, and their very great beauty shall certainly keep them very long to remain the great favourites with lovers of very fine large flower spikes.

Among the esteemed double sorts I may mention Lord Wellington and Grootvorst, rose; Prince of Waterloo, La Tour d'Auvergne, and Florence Nightingale, white; Louis Philippe and Garrick, dark blue; Blocksberg and Rembrandt, light blue. Of the double yellow flowers Goethe is about the best, but most in this colour are rather of small spike. Of dark red among the double flowers there are only very few varieties, of which Louis Napoleon and Waterloo are about the best, but the latter sort is not so full as might be wished.

Among the single varieties we at present possess the greatest variety of colours, and among them we can now show superb large and handsome flowers, such as are Garibaldi, Pellissier, Scarlet Light, brilliant scarlet; Fiancée Royale, Gertrude, Koh-i-noor, Prima Donna, Von Schiller, red; Carlyle, Charles Dickens, Dr. Livingstone, Gigantea, Macauley, rose; La Grandesse, Alba Superbissima, Crown Princess, Madame Vander Hoop, pure white; Grandeur à Merveille, Baroness Van Tuyll, Mammoth, Seraphine, blush white; General Havelock, Baron Von Humboldt, Masterpiece, Mimosa, William I., black blue; Baron Van Tuyll, Charles Dickens, King of the Blues, Bleu Mourant, dark blue; Blondin,



Czar Peter, Grand Maître, Leonidas, Grand Lilas, Lord Raglan, light blue: L'Honneur d'Overveen, Sir Henry Havelock, Charles Dickens, Haydn, violet; Ida, King of the Yellows, La Citronière, Obelisk, Anna Carolina, pure yellow; Beauty of Waltham, Clio, Lamplighter, Lord Palmerston, Argus, flowers with striking eyes or centres.

All the varieties have been obtained from seed selected from thousands of seedlings and by artificial crossing and impregnations, which is an occupation of very long duration, as a little bulb grown from seed requires six or seven years before it is of sufficient size to produce a good flower; and when considering that this bulb if found worthy to be grown on requires twelve to fifteen or twenty years' careful artificial propagation before a moderate stock can be had, it may not create astonishment when many times new varieties have realised large sums of money. New varieties in almost every shade of colour have been saved from year to year, showing improvements in size of spike, in size of bulb, size of bells, &c.; but it may be worth remarking that in all the different colours we have obtained improvement in size of bells with the exception of the bright scarlet-coloured sorts, which until now have always turned out with small narrow bells. If we could obtain a Hyacinth flower of a bright scarlet colour like Queen of the Hyacinths or Garibaldi, with bells as large as La Grandesse or Cloche Magnifique, what a splendid improvement it would be, and probably in the course of time we may obtain this treasure.

Between the time when double Hyacinths were most esteemed and the time when single varieties came into favour, a period of perhaps ten years, the always increasing demand was greater than the general stock could furnish, and consequently the prices of Hyacinths grew higher every year, and it was at that time to be a rather profitable culture. This induced a great number of farmers in the neighbourhood of Haarlem to try growing Hyacinths, which many have done with more or less success. At that time land was worth only half the price that it is at present, and the most easy-growing Hyacinths were then artificially propagated to such a large extent that the stock overgrew the demand, and during the last three years forced the market price of such sorts down to such low prices, that during the last two years thousands of Hyacinths have been exported at prices below the actual cost of production, bringing great losses to the growers of this beautiful flower, while it overstocked the markets in several foreign countries where these bulbs were most used, to which poor circumstances the general depression in trade has of course contributed.

Respecting the use made of Hyacinths, I may say that the greater portion of the bulbs are being forced, and for this purpose the bulbs should be potted about the middle or end of September in 5-inch pots in rich light soil, and placed in a cold frame or under a wall, where they can be covered with wooden shutters or some similar contrivance to keep off heavy rains. In either case they should be covered a foot thick with newly fallen leaves, and being once well watered after potting they may be left for months to form their roots, when the most forward should be brought out (some repot into somewhat larger pots according to the apparent strength), and the bulbs should be placed in a gentle heat as near the glass and light as possible to prevent the flower stems rising to an unnatural height. Some care is necessary in the application of this, or the flowers will be abortive. It should not exceed 50° for the first three weeks, but afterwards may be increased gradually to 60°; and if the pots are plunged in bottom heat the same care should be observed, or the points of the roots will certainly be killed. One-third the depth of the pot is fully sufficient at first, and if the heat is brisk they should not be plunged more than a few inches at any time.

When the flower stems have risen to nearly their full height, and the lower bells of the spike are beginning to expand, the plants should be removed to a lower temperature usually afforded by the greenhouse, and when the bells are fairly expanded the plants can be taken to the sitting room or wherever their presence is desired, observing to protect them from sudden changes or cold draughts of air, and the water given to them should be moderately warm.

Instead of the usual practice of drying Hyacinths at once in the sun, I would rather recommend the method adopted in this country—namely, to place them side by side on a sunny piece of ground, and cover them with about an inch of loose earth to thoroughly ripen the bulbs by the subdued heat imparted to the earth which surrounds them. Left in this position for a fortnight they will become dry and firm, and an hour or two's sunshine will finish them properly for storing.

The propagation of Hyacinths can be artificially performed in two ways. (1) By the bulbs being cut crosswise and sprinkled with sand to absorb any superfluous moisture that may exude from the incisions. After a time they are planted in the earth in the usual way, when the mother bulb divides itself into small bulbs.

(2) By scooping out the base of the large bulbs after they have been taken out in July. After this operation it requires great attention in watching carefully the process of properly drying the wounded bulbs, because not proper attending to this the whole bulb may become mouldy and be lost completely. The bulbs thus treated are planted in October, at which time the small offsets at the base of the bulb are partly visible already, and are then planted in the usual way, only with a slight covering of earth in a warm situation as much exposed to the heat of the sun as possible, where the small bulbs gradually develop in the warm sandy soil, with the proper degree of moisture, aided by the climate, which about Haarlem appears to be so very suitable to the growth and development of this flower. (3) In the natural way by offsets from the parent bulb, which is, however, rather slow to meet the present large demand.

The Tulips used for forcing require about similar treatment as the Hyacinths. When placed in heat they should be placed as near to the glass as possible, in order to prevent the flowers drawing up too high, and the flower stems should occasionally be assisted when by their quick growth they get entangled in the foliage. During recent years Tulips have become great favourites for planting out in beds, for which thousands are annually employed, making by their very brilliant colours a very showy effect indeed. I could dwell for a considerable time upon the history of the Tulip and the very unusual speculation, or rather gambling, at some past period these have been made subject to; but if my present paper has given some little pleasure, it may induce me to try another on these and other sorts of flower roots at some future occasion.

I have no doubt that in several ways my present paper may be found wanting, but I may be allowed to remind you that as a foreigner I write in a language altogether strange to me. As an ardent admirer of horticulture in every branch, and stimulated by the earnest desire to do something to oblige the members of the Club, who may all be considered as lovers of horticulture, floriculture, and botany in every branch, I have ventured to write this short paper.

## ESTIMATES OF VEGETABLES.

**POTATOES.**—This is one of the most important if not the most valuable of all vegetable crops, and the most extensively cultivated; indeed, it ranks second only to cereals in economic value. The great value of the Potato as a crop to the grower for market and to those cultivating their own vegetables is its admitting of two crops of useful products being taken from the same ground in a season, which, however, only holds good of the early and second early varieties, and the most eligible are those with short sturdy haulm, being productive of an even-sized saleable crop of tubers, having few small, or chats, and good in table quality.

**KIDNEY POTATOES.**—Foremost as an early must be placed Veitch's Improved Early Ashleaf, which is by some considered identical with Kentish Ashleaf, and Rivers' Royal Ashleaf; but I have no experience of Kentish Ashleaf, and Rivers' Royal Ashleaf I find marked by a much stronger and longer haulm, and the crop is fully a week or ten days in attaining a profitable or marketable size. This means a higher value, and I have no hesitation in deciding in favour of Veitch's Ashleaf as the best early kidney. It crops heavily, the tubers are a good even size, with very few small, and brings a good per-centage higher value from the salesmen through its early maturing qualities, the young tubers even having a cooking quality that some others do not possess in a matured condition. Myatt's Prolific Ashleaf is, perhaps, the most extensively grown as an early crop. It crops well, but the crop is marked by a quantity of small tubers, which militate considerably against the paying qualities of the crop. Myatt's is much confounded with Veitch's, and in growth and shape of tuber they are similar, yet Veitch's has a more erect and slightly sturdier haulm, the tubers being more regular in size, more bulky, and the plant is distinguished by fewer haulms per plant, which accounts no doubt for the improved size and enhanced value. Amongst other early kidney Potatoes mention ought to be made of the Old Ashleaf or Early Dwarf-top, which though useful for frames and warm borders, as furnishing very early dishes, is of small value in comparison with others. Cosmopolitan is fine in form, productive, and excellent in quality. Mid-summer Kidney promises to be one of the very best first earlies, as the tubers are large, handsome, and good quality, combining great cropping with other valuable properties.

Of second early kidney Potatoes, Covent Garden Perfection I found a heavy cropper, the tubers being handsome in shape and a size that takes well with consumers, the quality good, and the plant healthy, being remarkably free from disease for an early, and the haulm, though somewhat more profuse than the



Ashleaf varieties, not very luxuriant, and on that account admitting of intercropping. Beauty of Hebron though a heavy cropper is not to be classed with a good cooking Potato, though it takes with rough-and-ready culture, and its corresponding consumers, similar remarks applying to Early Rose. In light and not rich soils the two last are much better in quality than in rich soil, and the bulk given in some measure compensates for loss of quality, and the returns from the salesmen are relatively good.

In late kidney Potatoes *Magnum Bonum* must take first position. It crops heavily, and is a good disease resister. Its quality is poor at best, but its cooking qualities are dependant in a great measure upon the soil. In light comparatively poor soils it attains a much better quality, and in many instances on hot sandy soils it is grown extensively and sent to market in succession to the early and second early varieties. A desirable main crop kidney Potato long wanted appears likely to be forthcoming in Welford Park, but I think much more highly of *Miss Fowler* and *Chancellor*, the two last evidently good disease resisters, but I have not sufficient experience of any main or late kidney, those I have grown failing in some essential characteristic. I have omitted *Lapstone* and its variety *Yorkshire Hero*, though for quality they are unsurpassed, also in cropping, but they are the worst of any for super-tubering and in liability to disease.

**ROUND VARIETIES.**—Early varieties in this section must be set down as nil, for though we have *Early Coldstream* there is not one round early at all comparable with the early kidney varieties in cropping or any other quality, though *Early Oxford* finds some favour with growers. In second earlies there is not much to be said in favour of the round, as for some reason these do not mature so quickly as the kidney varieties. *Sutton's Early Regent* is a capital succession to the early and second early kidneys; it crops heavily and is in every respect excellent, cooking firm and floury. *Dalmahoy* also is a capital sort for general use, and may be classed as a second early. To the latter type we are likely to have some grand additions in *Village Blacksmith*, a rough-skinned sort, sure indication of good cooking quality, and very productive; *M.P.* has a dwarf stout growth, crop heavy and very even in size—good useable fat fellows they are, as if they could not bear any small in their company, and the quality is good, improving with keeping, therefore is a main crop variety. *Chiswick Favourite*, with its strong haulm, ought to prove a great favourite alike with growers and consumers, but many novelties and certificated Potatoes, even trial ones, prove unsatisfactory when subjected to the treatment of ordinary varieties. Of the second early class *London Hero*, having a short haulm but spreading, and affording a large crop of flattish tubers, is promising, but for reasons above given I consider certificates for Potatoes most misleading.

Of main crop or late round varieties, *Schoolmaster* takes high place, but it does not succeed in all soils, it growing with me very coarse in rich light soil, and is very subject to disease. *Reading Russet* does better and is a good cropper of fair quality. *Victoria* also does badly with me through the land being rich, otherwise it is an excellent variety, and fine for the main crop. *Reading Hero* I find a great cropper, having large heavy tubers, which are of excellent quality, keeping in condition until the season is well advanced. *Vicar of Laleham* is a fine sort in the way of *Skerry Blue*, but is a seedling from *Victoria*, and though large in size and heavy in cropping is of first-rate quality. *Dunbar Regent* is unsurpassed as a late sort, cropping heavily, and suiting most soils. *Scotch Champion* need only be mentioned through its suitability for wet soils where other sorts would not succeed nearly so well, but its quality, like all others, is best in a good ripening soil, though much is accomplished by keeping. *Prime Minister* has large tubers, handsome, as good in quality as looks, and remarkably free from disease.

My selections are—early, *Veitch's Ashleaf* and *Cosmopolitan*; second early, *Covent Garden Perfection* and *Lapstone* (for quality); late, *Magnum Bonum* and *Chancellor*. Round—second early, *Early Regent* and *Village Blacksmith*; main crop, *Victoria* and *Chiswick Favourite*; late, *Vicar of Laleham* and *Dunbar Regent*.

N.B.—Where two are named the first-named should be selected if one only is wanted.—**UTILITARIAN.**

## CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 217.)

### PYRAMIDS.

CHRYSANTHEMUMS represented in the form of pyramids are highly effective when well grown, neatly trained, and profusely flowered. So-called pyramids are often spoiled by cultivators

attempting too much, and instead of their producing really creditable examples of culture we see tall attenuated columns not half furnished. Though small free-flowering incurved varieties, such as the *Rundle* family, are amenable to this method of training, Pompons are the best, and when produced as represented in the engraving, which is from a photograph, they are certain to be admired. The specimen in question (*Mdlle. Marthe*) was grown and exhibited by Mr. A. Harding, and may be taken as an example of skilful culture.

For perfecting good pyramids strong cuttings are inserted in November. The best possible growth is encouraged, and the



Fig. 45.—Pompon Chrysanthemum.

plants placed into their flowering pots (8 or 9-inch) by the end of May. The leading shoot is topped at about 9 inches, the best shoot following being taken as a leader again, the side branches trained out regularly. A wire hoop about 18 inches in diameter is fixed at the base of each plant, supported by two crossed sticks affixed to the pot, a central stake of the requisite height being at the same time inserted. Smaller wires can be taken from the hoop to the top of the stake if desired; but good pyramids may be formed without by a judicious arrangement of the branches, securing them to the central stake and to each other. They must be topped as required for insuring a sufficiency of growths, the last time about the end of June in the case of the late-flowering varieties, the earlier sorts a fortnight or so later if all are desired to bloom at the same time.

As above indicated it is a mistake to attempt to grow the plants too large, it being far better to confine them to a fair size, say



3 feet high and 2 feet through at the base above the top of the pot. Continue to tie the branches loosely as they grow, as neatness in this form is necessary, and stakes cannot be used. When the flower buds show in September retain only the best on each shoot, and when these are swelling freely dispose them regularly, completing the tying as far as possible about the second week in October; then, if the plants are in the best of health, scarcely a twisted stem and no ligatures will be visible when the blooms are expanded, while the foliage will be dark, naturally disposed, and so dense that it will be impossible to see into the interior of the plant. If a pyramid can be seen through it is certainly imperfect.—E. MOLYNEUX.

#### NE PLUS ULTRA OR NORTHAW PRIZE BRUSSELS SPROUT.

MR. IGGULDEN, at page 227, remarks that these two Sprouts are exactly similar, and he is quite right. It would serve no useful purpose to go into details, but the public should know that the Sprout in question originated in these gardens, and that it was the desire of my employer and my own that it should be sent to Messrs. Veitch's grounds for trial. I also gave a pinch to a gardener, and I know how it found its way to Northaw, but why it should be sent out "direct from the grower" under the name of "Northaw Prize" is a question I leave your readers to determine.—G. MERRITT, *Gardener to Lord Daere, Kimpton Hoo, Welwyn, Herts.*

#### THEORY VERSUS PRACTICE.

IN a contemporary British gardeners have been held up to public ridicule on the grounds of their theoretical education not being equal to that of the foreigner. Some of our leading (so-called) scientists have a great liking for comparing us to our theoretical foreign neighbours; but in spite of our supposed ignorance I think we need not fear comparison as regards the results of our practice with the very best of these foreigners. If our critics would but condescend to visit some of our leading horticultural exhibitions and private gardens, and honestly compare them with continental horticultural exhibitions and gardens, I think that possibly they might not have much reason to be "pained" at our ignorance.

I have had the misfortune to work with foreigners, and have found that as a rule that they are quite up to your contemporary's standard—i.e., they are so well educated that, amongst other necessary acquirements (?) directly connected with gardening, they can "sketch flowers" and "speak and write more or less well some other language than their native tongue;" but then comes the poser—viz., that they come to this country "to work hard at the lowest pittance, disdaining neither the humblest occupation nor the lowest pay." Well, it may be my bad taste, but with all their "superior qualifications" I very much prefer an intelligent British novice to the best of them when our work is concerned. I may add that those with whom my lot has been cast have come from a foreign "National School of Horticulture," and are considered, I presume, "picked foreign gardeners." I am quite willing to admit that they have a "superior theoretical" knowledge of gardening, but in practice they are only fit to work with our beginners, and even then would not distinguish themselves for their industry. If foreign horticulturists are so superior to the Britishers, how comes it that the head gardener at one of the most noted places in France always employs English or Scotch as foremen in his principal departments, and, further, will not employ young men from the National School of Horticulture at Versailles? Then if botany and kindred sciences are so indispensable to practical gardeners, why is it that when a gardener—be he young or old—is being engaged he is never asked whether he has a knowledge of these sciences? The only inquiries made in nine cases out of ten are simply with reference to his "practical" experience and personal character.

In the article to which I have before alluded we find it stated that "matters of purely practical routine may very well be left to take care of themselves;" and yet this is what is chiefly required of us. A man who can do his work quickly, neatly, and well is the man who gets the best recommendation in this country, and deservedly so. It can hardly be disputed that the young man who cultivates an undue love of books and theoretical knowledge of his profession loses to some extent his liking for work—in fact, gets to think himself too good for work of a practical nature, and loses proportionately the character which is so much sought after—viz., "an active industrious man."

The old saying, "A little knowledge is a dangerous thing" applies very well here, as, to gain a knowledge of what we are told we are deficient in, we should be liable to neglect our real calling. We have to earn our living by the "sweat of our brow"—at least,

that is the lot of the majority of us, and therefore we must work accordingly.

Besides, what incentive is there for us to acquire all the knowledge spoken of? As I have before observed, our employers do not require it at our hands, and is it likely that we are ever to be bound to gain all this learning in order to obtain the salary of, say, £100 per annum, a sum that is generally considered good wages for a gardener? The fact is, a good practical man with comparatively little scientific knowledge is quite as able to satisfy the demands usually made on a gardener by his employer as one who "has a good knowledge of botany and physiology, chemistry, and can draw plans, sketch flowers, knows a little Latin, and speaks and writes more or less well some other language than his native tongue."—YOUNG PRACTICALIST.

#### A GERMAN ROSE SOCIETY.

A FEW particulars concerning our Rose Society may be of interest to some readers of the *Journal of Horticulture*.

During the Pomological Exhibition at Hamburg in September, 1883, a Society was formed for the encouragement of Rose culture in this country, when M. Schneider of Wittstock was elected President, who is well known here as the first proposer of the Rose election and as editor of a rosarian year book. For two years very little was heard about this movement, until last year the members met at Darmstadt and elected M. von Lade as President, M. Schultheiss Vice-President, and M. Strassheim of Frankfort Secretary. Since the 1st January the Society has published its own journal ("*Die Rosenzeitung*"), edited by the Secretary and sent out every second month. The first two numbers contain well written articles by the first growers, such as Gel Kettlers, Schultheiss, Lambert and Reiter, Wesselhoeft, Warms, Jacobs, Koelle, and others; also two coloured plates of new Roses—viz., W. F. Bennett, and Her Majesty, and the names of over 700 members and thirty garden societies of late admitted. The success has during the short time been very rapid, and it is to be trusted that the encouragement will continue in such a good cause. The subscription is only 3s. per annum, for which small amount the members receive all papers published by the Society free, and also have free admission to all exhibitions arranged by the same; the latter are held at least once a year in different towns of Germany. The first Exhibition will be held in connection with the Horticultural Society's Show of Hamburg at the Zoological Gardens, from the 9th to 12th July. The programme is already published, in which 163 prizes are offered; of these seventy-two alone are for Roses. Among the prizes for Roses we may mention those for cut blooms of named sorts; for fifty and twenty-five each of Maréchal Niel, Souvenir de Malmaison, La France, Baronne de Rothschild, Horace Vernet, and Marie Baumann; for twenty-five of Catherine Mermet, Marie Van Houtte, Perle des Jardins, Etoile de Lyon, Madame Bravy, Madame Mel. Villermoz, Louis Van Houtte, A. K. Williams, Madame Victor Verdier, Captain Christy, Fisher Holmes, Jean Liabaud, Duke of Edinburgh, and Merveille de Lyon; for twenty of Lady Mary Fitzwilliam; for ten of Earl of Pembroke, Princess of Wales, Madame de Watteville, and W. F. Bennett. With great interest we look forward to the show of W. F. Bennett.

Another paper about Roses was started in July last; it is edited by E. Metz of Zwickau, Saxony, and published once a month at 6s. per annum. It contains some very able articles, and is illustrated with woodcuts.—ANDREW SPIERING, *Bergedorf*.

#### NEW v. OLD VARIETIES.

INSTEAD of misunderstanding Mr. Molyneux's advice, I think "S. B." and "Lathyrus" misunderstand mine. I am not so conservative as to imagine nothing will ever be introduced to surpass existing varieties.

I believe it is better for persons with limited means to wait for a year or two before growing the present season's novelties. By that time the worst will have disappeared from the catalogues, only the best remain, and these can be purchased at a reasonable price.

Of course in the case of a specialist, or a head gardener of long standing, where his employer does not object, nothing can be said against trying new varieties; but for a young gardener, or a man with insufficient means and labour, and where exhibiting is not the object, varieties that have been in commerce some time will answer the purpose as well as those costing four times the money.

The following is my vegetable seed order:—Broad Beans, Green Long Pod; Kidney, Light Dun; Beet, Dell's Crimson; Cabbage, Red Dutch; Kale, Dwarf Green Curled; Broccoli, Veitch's Self-protecting, Snow's Winter White, Adams' Early, Loxington, Wilcove, Hill's June, and Purple Sprouting; Brussels Sprouts, Aigburth; Savoys, Dwarf Green, Curled and Early Ulm; Carrot, French Forcing Horn, and James' Intermediate; Cauliflower, Early London and Veitch's Autumn Giant; Endive,



Green Batavian and Green Curled ; Leek, Musselburgh ; Cabbage Lettuce, All the Year Round ; Onions, James' Keeping, Queen, Giant Rocca ; Parsnip, Hollow Crowned ; Radish, French Breakfast ; Mixed Turnip ; Peas, William the First, Laxton's Supreme, Champion of England, Ne Plus Ultra, and a few of Veitch's Perfection ; Spinach, Prickly and Round (this is optional, as the Round will stand the winter) ; Tomato, Hathaway's Excelsior ; Turnips, White Stone and Chirk Castle ; Vegetable Marrow, Long White.

I am sure if "S. B." had seen my Aigburth Sprouts this winter he would have said they were fit to exhibit, in spite of the dry summer and the fact that they were only watered twice. I have found the Peas named produce good crops of excellent quality ; and if I raised the seed bill to three times its present amount, I should most likely be told that the seed cost more than the Peas are worth. The seeds named can all be purchased at a reasonable price, and the varieties will suit a beginner till he finds out his employer's tastes and disposition, and fixes on a hobby for himself.—A. L. G.

## HINTS ON ORCHID CULTURE.

(Continued from page 229.)

### CULTIVATORS' ENEMIES.

ORCHIDISTS have abundance of enemies to contend with, for the plants are subject to the attacks of many insects ; but in this, as in other cases, prevention is better than cure, and a continual watchfulness for the first appearance of these pests and the adoption of prompt measures will save endless trouble. It is important to insure that the plants purchased are thoroughly clean, and if there be any doubt on the matter they should be well washed with tepid water and a small quantity of softsoap, sufficient to discolour the water, this being especially necessary for imported plants, the roots of which should also be washed in clean water. Orchids are subject to the attacks of most insects which infest other plants, such as green fly, red spider, thrips and scale of several sorts, and mealy bug ; while snails, slugs, woodlice, ants, and cockroaches also cause much trouble if allowed to become numerous. It is not difficult to keep a small collection clean, but where large numbers of plants are grown it requires constant care ; and in some establishments it is the rule to thoroughly clean the whole stock periodically, for delicate plants once a month. The frequent use of tepid water, softsoap in very small quantities, or weak tobacco water is the best means of keeping the foliage clean, applying the liquids with a sponge or camel's-hair brush. Green fly and the thrips may be destroyed by fumigation with tobacco or tobacco paper. Though this is commonly recommended it is a dangerous expedient in the hands of beginners, for a strong fumigation will often prove far more injurious than beneficial. It should only be resorted to in extreme cases, and then it should be given very moderately on several alternate nights ; choose a quiet evening, have the house drier than usual, and if moveable blinds are employed pull these down. Be careful to place the fumigator where the hot smoke does not ascend directly under any plants, and do not employ burning coal or coke, as the gases arising from these are very injurious. Slugs and snails must be looked after closely, a little bran being a good bait for them. A few cabbage leaves can also be laid about on the stages, and frequently examined ; hollowed potatoes, a little moss, and various other things serve as traps for woodlice. Ants may be caught in glasses of sugar or treacle and water sunk in the stages level with the material, or old bones can be placed about and occasionally plunged in hot water ; while for cockroaches I have never seen anything better than Chase's phosphor paste, which can be spread on pieces of paper, wood, slate, or any substance and placed at night where they are most frequent, removing it again in the morning. Isolating stages by means of metal saucers soldered round the supports and filled with water is an excellent plan, and the Orchid pan already noticed answers a similar purpose. There are several insects which are peculiar to Orchids, and one of the worst of these is that which attacks Cattleyas, causing the pseudo-bulbs to swell, and for which the only remedy seems to be cutting the growth away immediately it is seen to be swelling unusually. A useful little friend in the Orchid house is the green frog, which is a most persevering and voracious destroyer of insects, and two or three of them in a collection will save the cultivator a great amount of trouble.

The diseases of Orchids are few, and are principally due to excessive moisture in the air or at the roots, accompanied by unduly low temperatures. Many Orchids will continue healthy with very little heat, but the supply of water must be correspondingly diminished or decay of some kind will commence. That form termed "rot" chiefly attacks the pseudo-bulbs, but sometimes the leaves, and in any case the decayed portion must be cut clean out, dusting the surface freely with sulphur. "Spot," which appears on the leaves, has a similar origin, and the best plan is to alter the treatment as to heat and moisture, cutting away the worst leaves, or dusting them with sulphur. It is important to keep all material in a fresh clean state, providing a wholesome atmosphere by suitable ventilation.

—AN AMATEUR.

(To be continued.)



WE are informed that the annual POTATO SHOW AT THE CRYSTAL PALACE will be held as usual this year, but it will form part of the Company's programme for the season, the direction and arrangement being entrusted to the Superintendent, Mr. W. G. Head. Schedules are in course of preparation and will be issued as soon as possible.

— THE TREE FERNS AT CHISWICK which are being prepared for the Indian and Colonial Exhibition at South Kensington are making excellent progress. The large orchard house is devoted to the Dicksonias, Cyatheas, and Todeas, which present an array of these plants such as can be seldom seen. There are some particularly grand specimens of Todea barbara (T. africana), and one has been received at Kensington weighing two tons. A large example of this which has been grown several years at Kew weighed 15 cwt. when it was received, and another sent to Ham-burgh weighed 23 cwt., but that above recorded is probably the heaviest that has ever been imported to this country. Filmy Ferns, including numerous Todeas and Trichomanes, are also plentiful, and it appears that the representations of Colonial flora to be shown at the Exhibition this year will constitute an important and highly interesting feature.

— WE learn that Mr. R. I. Lynch of the Cambridge Botanic Gardens has translated "LES PLANTES DES ALPES" by M. Correvon, Director of the Jardin Alpin d'Acclimatation, Geneva, but that publishers do not care to risk its production. If those who would buy the translation will forward Mr. Lynch a postcard to that effect, he will publish it himself in the event of his receiving information of a sufficient number of purchasers to cover the cost. The price would be less than 5s. The original work has been a success, as might be expected from the author's experience as a cultivator, from his familiarity with the conditions under which Alpine plants grow wild. The value of the work rests in this unusual combination of knowledge. It has been written as a guide to culture, assuming that intelligent and successful cultivation must depend upon a knowledge of alpine nature. For this translation the author has written an additional chapter on botanising on the Alps, and it contains all that is found in the second French edition.

— THE summer Show of the CROYDON HORTICULTURAL SOCIETY will be held on June 30th, and the autumn Show on November 10th and 11th. The schedule of the first-named Show embraces 100 classes, the autumn Show 48 classes, and very good prizes are offered. His Grace the Archbishop of Canterbury is the President, and Mr. A. C. Roffey the Secretary of the Society.

— "L. G." sends us some remarkably well-grown samples of TABERNÆMONTANA CORONARIA FLORE PLENO, with the following remarks—"This is a plant that is not nearly so much grown as it deserves to be, especially where there is a demand for white flowers. I have a plant growing in the back of a Croton house. It is in a 14-inch pot, is about 4 feet high, and as much through. It is in flower quite nine months out of twelve, and during that time hundreds of flowers are gathered from it. They are much valued by ladies on account of their fragrance, which also makes them very valuable for buttonhole and bouquet making ; the only defect is their having such short stems that they have to be mounted on wire. The flowers should be gathered as soon as open, when they will keep fresh for a week. The plant is easily propagated by cuttings taken from half-ripened shoots. They should be placed in a moist bottom heat under a stand, light, or bellglass. The best soil is good fibrous peat and loam in equal parts. After the pots are filled with roots give liquid manure at every alternate watering. The plants must not be allowed to get dry at the roots, or the buds will fall prematurely."

— WE are informed that Mr. JOHN SIMONITE died on March 26th at Rough Bank, Sheffield, in his eighty-sixth year. He caught a chill three weeks ago, which brought on a severe attack of bronchitis, from which he never recovered. He was father of Mr. Ben Simonite, so well known as a cultivator and raiser of florists' flowers. Mr. Simonite was also a raiser and cultivator more than half a century ago. Much



sympathy will be felt in florists' circles for Mr. Ben Simonite, who had the help of his aged father in his garden up to the time of the illness which resulted in his death.

— GARDENING APPOINTMENT.—Mr. George Bates, late foreman at Calcot Gardens, near Reading, has been appointed gardener to A. H. Wood, Esq., Arlebury, Alresford, Hants.

— WE are informed that the LUDLOW HORTICULTURAL SOCIETY will hold their Show on Wednesday, August 25th.

— Mr. H. S. EASTY sends the following note on THE WROXTON ONION:—"Perhaps it is rather late to recommend any variety of Onion for sowing, for I think when practicable February is the right month for putting in seed, but to those who are rather behind in their work—as indeed, so many are this year—I strongly recommend this handsome globe-shaped Onion as mild in flavour and an excellent keeper. I think those who give this variety a trial will not regret it, and with fair culture will obtain bulbs quite fit for exhibition. It is a quick grower and decidedly distinct, which is more than I can say of many new varieties. May I ask the readers of our Journal if they can tell me who is the raiser of this sterling novelty? for decidedly his light ought not to be hidden under a bushel."

— HORTICULTURAL CLUB.—A special dinner and conversazione was held on Tuesday, 23rd March, for the twofold object of welcoming some of the Dutch florists who had come over to the exhibition of Hyacinths and also to hear a paper kindly contributed by Mr. J. Polman Mooy of Haarlem, a member of the Club, on the Hyacinth. Those who had accepted the invitation and were present were Messrs. Massurel (Vervae and Co.), Ghent; Mons. A. F. Byvöert (Messrs. Byvöert Bros), Haarlem; and Mr. E. Kersten (Kersten & Son), Haarlem. There were present, besides, Mr. John Lee, Chairman; the Hon. and Rev. J. T. Boscawen, Dr. Hogg, Messrs. H. J. Veitch, Cutbush, C. Pearson, Consens, Hore, Girdlestone, Wheatstone, Van Waveren (Hillegom, Holland), &c. Mr. Mooy's paper was read by the Secretary, and is published on another page; it was highly appreciated, and an unanimous vote of thanks moved by Mr. Veitch, was desired to be conveyed to Mr. Mooy, and the hope expressed that he might be able to come over next year and read his promised paper on the Tulip. An interesting discussion followed, and a very pleasant evening was passed.

— THE monthly meeting of BELGIAN HORTICULTURISTS was held on March 22nd, when the following members were present:—MM. Vict. Cuvelier, Ph. Blankaert, B. Spae, J. Hye, Desmet-Duvivier, Edm. Vervae, Em. Decock; MM. Van Geert père and Ad. Rosseel presiding over the two sections, and MM. A. Peeters and Art. Desmet were secretaries. Certificates of merit were awarded for the following plants:—*Imantophyllum* Mme. Vervae, from M. Vervae-Vervae; *Oncidium Jonesianum*, from M. A. Poeters of Brussels; *Azalea Vervaeana*, from M. Joseph Vervae; *Cypripedium Leeanaum*, from MM. Vervae et Cie.; *Odontoglossum Pescatorei Vervaeanaum*, from MM. Vervae et Cie.; *Odontoglossum Halli leucoglossum*, from the same exhibitors; *Cypripedium Sallieri*, from M. Jules Heye; and *Amazonia punicea*, from MM. Dubois et Cie. A cultural certificate was awarded for *Cypripedium superciliale*, from M. Jules Heye; and *Pellea ornithopus* var. *brachypteris*, from Mad. Ve. J. Vanderzwaelmen. Honourable mention was accorded for *Cattleya Trianae magnifica*, from M. L. Desmet-Duvivier; *Clivia miniata Triomphe de Wondelghem*, from M. de Ghellinck de Walle; *Clivia miniata Triomphe de Gendbrugge*, from MM. Blankaert et Vermeire; *Cattleya Trianae* var., from M. James Bray; *Azalea indica L'Amour*, from M. Joseph Vervae; *Cypripedium Boxallii guttatum* var., from M. Van Geert père; *Odontoglossum mulus*, from MM. Vervae et Cie.; *Cattleya Trianae* var. *Popayan*, from the same; *Cypripedium hirsutissimum Vuylstekianum*, *Cypripedium politum*, *Anthurium Adriani* from M. Jules Heye.

— THE Committee of the Jacksonville Board of Trade publish in the *Florida Dispatch* some curious information about PAPER CITIES for the benefit of the unwary. "The genesis of a 'paper city' is as follows: Some speculative person directs the attention of capitalists in New York, Chicago, Cincinnati, or elsewhere to the opportunity presented by Florida's 'boom' and the general interest which is felt in the State throughout the country. They chip in a little money, send a man to Florida to prospect and buy a lot of land where they can get it cheapest and on easiest terms. Having bought the land they have it surveyed off into diminutive 'city lots,' get up flaming circulars, open handsome offices in some northern

city, flood the northern newspapers with advertisements, and sell their lots to people who have never seen Florida, and most of whom never expect to see it. No Floridian has anything to do with it, nor even hears of it, except through the northern newspapers, or through dupes, who, in their disappointment, anathemise Florida because they are deceived and swindled by northern speculators." The Committee go on to describe legitimate town building. "The site is necessarily chosen with reference to productions of soil and facilities of transportation. The lots in these towns are large enough to afford a yard around the house, a vegetable garden sufficient for the needs of a family, or a small Orange grove such as one man may care to look after. The object which the projectors of such towns set before themselves is to attract actual settlers, people who after purchase will settle and live there. Some of the most flourishing towns in Florida to-day, with a contented and prosperous population, have begun in this way, and such enterprises ought not to be confounded with 'paper cities.' These are genuine Florida projects; the others are alien schemes of outside speculators." The Committee conclude by saying that "Florida is not afraid of the truth. Much that is fanciful and exaggerated has been published about her in times past; much that is unjust and injurious is being published about her now. But we rest serene in the confidence that the truth will at last be established, and from that we have nothing to fear. Florida is not a land of lot-eaters, where it is always afternoon, and where a man can without labour reap the fruits of the earth and enjoy the fulness thereof. But it is a land where honest industry can rely with certainty upon reaping its just reward, and where capital finds unequalled opportunities for investment. It is also a land which, in spite of one freeze in fifty years, offers to mankind the balmiest and most benign of winter climates."

## HARBINGERS OF SPRING.

(Continued from page 218.)

MUCH has been said of the charming *Chionodoxa* or Snow Glory, though by no means too much. It is dwarf, 8 inches or so high, when established, resembling the well known annual *Nemophila insignis* in colour, but as its introducer, Mr. G. Maw, observed, "richer in colour." It is easily grown, a free bloomer, and a free seeder, admirably suited for the border, rockery, or for naturalising on grassy banks and slopes; and now we have another in *C. sardensis*, which is in flower; it is of the same habit of growth, but of a most intense blue, in fact a gentian blue, with a very conspicuous and clear white centre. It is little known as yet, but I think it will be equally popular as the first named, for which it will form a pleasing companion.

*Scilla siberica* has been long known in gardens, and is still as welcome as ever. Some fear it has suffered neglect since the *Chionodoxa* became plentiful, and which may to some extent be true, but it will always occupy a good position among hardy spring flowers. Just pushing through the turf is *Bulbocodium vernum*, with large *Crocus*-like flowers of a purple hue; it, too, must wait the departure of frost. Amongst the species of *Crocus* at this time we hail with delight the appearance of *Imperati aureus*, *Oliveri*, *sulphureus*, *Wildeni*, and others, all of which form beautiful patches quite early in the year, even before the bedding forms have emerged from the ground. In *Ficaria grandiflora* we have a large golden yellow flower, a lover of marshy ground, and a most brilliant spring plant; and charming, too, are the hardy *Cyclamen*. Quite early in February come all the forms of *Atkinsi* and *Coum*, white, rose, and purple predominating. Pretty patches these form, and may be easily cultivated in cold frames, in pots, or in a sheltered rock garden nook. *Hepaticas*, too, are full of buds willing to unfold, but only one or two here and there are bold enough to face the frosty air. They all delight in a deep thoroughly enriched loam, and enjoy partial shade. In leaf mould they delight, and in abundance of sandy grit; they make quantities of roots, and a compost of these soils will suit them admirably.

The Windflower (*Anemone blanda*) will soon be in bloom. Lovely patches this forms in a little time; the blue is intense and so free-flowered that all who see it speak in its praise. In the herbaceous border in patches it is a gem, and equally so in the rock garden; while in the spring garden it is unequalled, rising about 10 inches above the surface. Not less conspicuous is the dazzling scarlet flowers of *A. fulgens*, which surpasses in its intense brilliancy that of the scarlet Zonal *Pelargonium*, and is one of the most effective of spring flowers. In mild seasons it comes late in February, though this season somewhat later than usual, and continues for weeks in perfection. It is a really noble plant in any position out of doors, and when grown in pots for conservatory decoration is equally striking. It is very free-flowering and quite hardy. It should for early spring-flowering be planted in September to insure its flowering early, and from this time, if planted at intervals, a succession may be had during spring, which many may prefer to one monotonous glare of its intense scarlet flowers. While this is yet in its prime come the varied Crown *Anemones* (*A. coronaria*), which, commencing in March, continue through April and into May. These represent many shades of blue, lilac, purple, rose, crimson, scarlet, and vermillion, are exceedingly double, large, and very handsome, equally adapted for spring gardening or



massing in beds generally, and certainly most useful at this season of the year for cut flowers. Nowhere have I seen forms of greater substance and brilliancy than at Belvoir, where they are grown extensively; they enjoy a well enriched soil of a loamy nature. Following these we have the golden blossom of *A. ranunculoides* and the lovely sky blue *A. Robinsoniana*; while still later come the form of the Wood Anemone and *A. apennina*. All these are beautifully adapted for naturalising, spring gardening, or the like, and make pleasing patches in any ordinary soil.

In turning to the Primulas, rosea, cashmeriana, and denticulata are among the first, soon to be succeeded by our native Primrose. There are many forms, single and double, all of which are valued in spring. They mingle well, too, with other flowers. Few, however, are of greater value than the acaulis section and those above-named for the earliest days of spring, and speaking of our wild Primrose reminds me of a charming companion it has in the blue Forget-me-not, which we all admire—I refer to *Myosotis dissitiflora*, than which we have nothing more deliciously sweet and elegant in all our spring flowers. A plant of easy culture, of easy propagation, and adapting itself to an almost endless variety of uses, it is a favourite everywhere. Daisies, red and white, now come in the category of spring plants; so, also, the early-flowered portions of bedding Violas. These are valued groups among spring plants which give variety to the garden and continue long in perfection. For spring gardens they should be planted early in October, and for summer beds may be planted at once. *Triteleias uniflora*, *conspicua* and *lilacina*—the former with its waxy-white flowers produced in the greatest possible profusion, and the latter with pleasing blue flowers equally free—continue for many weeks in succession early in the year? The Wood Lilies of North America, *Trilliums*, delighting in moist sandy peat in shady sheltered positions, are useful for spring. *T. grandiflorum*, *T. g. præcox*, and *T. g. maximum* are the best of the genus. The second-named is the earliest to flower, being succeeded by the other two; the last is a grand form, and quite the giant in every respect. To become well established all they need is to be let alone. This is coveted by numerous hardy plants, which do not readily establish themselves after being moved, and we find examples in the *Pœonia*, *Hellebores*, *Cypripediums*, with the group under notice, and many more, whose requirements are simple if grown on the let-alone system, and beyond supplying a liberal top-dressing of well-decayed leaf soil and old manure annually. When dormant these *Trilliums* may remain for years undisturbed, only to increase year by year in strength and beauty.

There are yet many more spring beauties, but which I cannot detail now, so many must be omitted. In passing, however, I would call attention to *Saxifraga Burseriana*, with its tiny glaucous, almost silvery compact tufts of Juniper-like rosettes studded with its sparkling white flowers on reddish stalks. The buds, prior to expanding, are of a ruby red, the successional ones contrasting most pleasingly with the already expanded blossoms. It is pretty for a sunny position, coming in flower from January onwards through February and March, only 2 or 3 inches high; it is a sturdy little plant. Later on we have the purple-flowered form of *S. muscoides*, a plant very effective in spring bedding, studded with its pretty flowers on mossy cushions, and with it the *Megaseas*, whose bold towering panicles of flowers render them conspicuous in spring. Some of the finest and hardiest are *ligulata*, having immense panicles of rose-coloured flowers, *cordifolia*, *purpurea*, and *Stracheyi* with spreading panicles of white flowers. But we have not long to wait ere *Leucojum vernum*, the Spring Snowflake, and *Erythroniums*, or Dog's Tooth Violets, so pleasing and quaint, the Vernal Gentian, and Wallflowers, Tulips, and innumerable spring-flowering plants will all be expanding. I have only named some of the most worthy of our earliest flowers of the year.—J. H. E.

#### PROPOSED INTERNATIONAL HORTICULTURAL EXHIBITION FOR 1887 AT SOUTH KENSINGTON.

[A paper read at the Royal Botanic Society's meeting last Saturday, by Mr. W. S. Manning, Woodlands, Matze Hill, S.E.]

It is most important this proposal should not be dropped for next year, because—

1st, It is much more certain of success if held immediately after the present successful series, the public having got into the habit of going to South Kensington during the summer.

2nd, The foreign exhibits would serve to offer valuable hints as to the most advanced systems and laws on the Continent regarding training in the rural schools; also as to the many kinds of market-garden produce and hardy fruits grown in North Europe, at present unknown here.

3rd, The crisis in the farming world has become so severe that no time should be lost in promoting any scheme that might aid in solving the knotty questions of agricultural distress, and in showing how land is profitably cultivated abroad. Our consuls could probably look up exhibits for this purpose.

4th, The allotments agitation and proposed land law reforms will tend to popularise such an exhibition, and it would serve to help in selecting the most lucrative crops for small holdings.

5th, We can best compete with America in our Apple-growing and with other foreign fruit growers when we see the finest and best paying varieties that are grown in climates like our own in Europe.

6th, Indirectly it will tend thus to relieve the terrible distress in the towns by promoting profitable spade culture and increasing food supplies in our rural districts.

7th, The Queen's jubilee may probably be kept next year, and this

exhibition, in its floral and festive elements, afford especially appropriate means of celebrating it.

8th, Whatever may be the difficulties in carrying out the scheme this year, they must be overcome whenever it is undertaken, and the guarantee fund would be most liberally repaid to if the above items can be all included in the project, so that all classes in the community may take a special interest in its success, from Royalty and our large landowners downwards.

The leading features in such an exhibition would be permanent and occasional shows. Amongst the latter a grand display of flowers from all Europe would probably produce the finest spring show ever held.

A series of similar shows for Orchids, Roses, Lilliums, Clematis, Coleus, and cut flowers will be held during the summer; shows of market-garden produce, with the most complete possible selection of the large varieties of Continental kinds, unknown almost at present here, such as Carrots of upwards of thirty kinds, Turnips of fifty-eight sorts, Haricots of seventy-five sorts, &c., salading, &c.

Every variety of fruit, especially of the best and most profitable Apples and Pears to keep up a regular supply "all the year round," can be shown from all parts, thus affording valuable opportunities of comparing notes, and enabling both producer and consumer to see what is done abroad in hardy fruit culture. Such fruits as Strawberries, already largely grown by our farmers, might be produced of sorts that would prolong the season, by planting a larger variety for successive supplies.

These educational and economic objects to be made the leading features, to show the best system of culture for small farmers, cottagers, &c. Specimens of such culture from all the more advanced States of Europe to be kept on show in successive relays, and similar exhibits from each of our counties in the United Kingdom.

The permanent shows would include fruit trees in pots, showing pyramid, bush, cordon, and espalier trees. Specimens of all fruits and vegetables, manufactured and dried, apparatus for canning, &c.; table decorations, window cases, vases, Palms, Coniferae, flowering shrubs, evergreens, plans for gardens, irrigation works, reservoirs, and aqueducts.

#### ORCHIDS AT THE FOREST HILL NURSERY.

THE Forest Hill establishment of Messrs. J. Laing & Co., so famous for its wonderful collection of single and double Begonias, will soon become noted for another speciality, a unique collection of Orchids. This enterprising firm has only recently commenced to form a collection, and within a short space of time has got together several large housefuls of select types of the various leading genera of these curious, but nevertheless beautiful flowering plants. The houses have, for the most part, been specially erected for Orchid growing, and are in every way thoroughly adapted for the purpose, as the present condition of the plants abundantly testify. A notable feature in the internal construction of these structures is the employment of galvanised corrugated iron, with iron cross bearers and uprights for the middle and side stages in lieu of wood and slate, as generally used. A layer of shell shingle is spread over the stages, and the firm speak highly of the advantages of the increased amount of moisture afforded by its retention in the channels of the iron in sufficient quantity to keep up a constant humidity in the atmosphere.

It is not, we believe, the intention of this firm to grow large specimens, but for those of moderate size suitable for general demand. Of *Odontoglossums* there are a vast quantity, representing the finest types of such species as *O. Rossi*, *O. Pescatorea*, *O. cirrhosum*, *O. Alexandria*, *O. vexillarium*, *O. Wilckeanum*, *O. Londesboroughianum*, and *O. gloriosum*, many of which were in flower at the time of my visit.

The *Cattleyas* are looking remarkably well, many of which are flowering within a year of their importation. Among these are a couple of plants of that beautiful species *C. Lawrenceana*. The colour and substance of the flowers of one of these plants is unusually rich and good, its labellum being of a well defined and regular outline, and of a very rich deep purple, of a much deeper hue than any that has yet flowered. The petals and sepals, too, are well formed, and the delicacy of their colouring contrasts beautifully with that of the labellum. Yet another gem of greater beauty than the preceding attracts the eye. Close by, in the shape of a charming variety of *C. Trianae*, indeed it is supposed to be a natural hybrid between *Trianae* and *Warneri*, as it possesses the characteristic petals of the former with the labellum and throat of the latter. The labellum is large and well formed, and of an intense rich purple crimson colour, whilst the sepals and petals, which are unusually large, are of a delicate blush, faintly suffused with the rich colouring of the labellum. Another beautiful *Cattleya* we noted in flower—*C. delicata*, which, as its name implies, is of a soft pleasing colour, a great favourite with ladies.

A group of *Dendrobium Warrianum*, in flower was interesting, amongst which was a very superior type as regards size and depth of colour of flowers. The petals and sepals were considerably above the average in size, and in point of colour the tips were of a much deeper hue than is generally met with, as also was the colouring of the lip. Above the average, too, in depth of colour and size of petals, sepals, and lip, was a small plant of *Dendrobium crassinode Barberianum*. Several other interesting Orchids were in flower, such as *Lælia harpophylla*, the sweet-scented *Dendrochilum glumosum*, *Lycaste Skinneri*, *Sophranitis grandiflora*, &c.

After our brief hurried inspection of the Orchids we had a glance through the other houses. Perhaps the most interesting sight of all was to see the houses devoted to raising seedling Begonias. Seated on high stools before a bench in one of these houses were several expert young men busily engaged in the difficult and tedious task of pricking off the



seedling Begonias from the seed pans into other pans. It requires an expert hand and sharp eye to separate and transplant the almost invisible minute little seedlings without injuring them in the process. Yet this is done with a very small percentage of losses. As affording an idea of the delicate nature of such a task, we may mention that in each pan of about 10 inches in diameter there are pricked out with mathematical precision from 200 to 300 tiny plants. The operator holds a fine-pointed stick as a dibber in one hand, and a similar sized stick with a small fork at the end in the other, with which to lift and separate the seedlings. Some hundreds of pans, representing hundreds of thousands of plants, besides an enormous quantity of last year's bulbs shows the gigantic trade carried on annually by this firm alone in Begonias. Caladiums, too, are a special feature here, several first-class varieties having been raised here. In another house we saw a large quantity of Azalea Deutche Perle in flower. This variety deserves to be grown more extensively than it is on account of the beautiful shape and colour (white) of its flowers, which resemble the buds of a well-grown Gardenia bloom.—T. W. S.

### CYRTOPODIUM PUNCTATUM VAR. SAINTLEGERIANUM

ALTHOUGH about twenty species of *Cyrtopodiums* have been discovered few have come into cultivation, and these are not by any means frequently seen in collections. Yet such species as *C. punctatum* are very handsome when in flower, and some of the yellow-flowered forms are also highly attractive and distinct from the majority of Orchids. Of the three or four species met with in gardens *C. Andersoni* is interesting, the flowers being bright yellow and borne in racemes or slightly branching panicles. It is a tropical American plant, and it is said "a paste or glue is prepared from its fleshy stems" that is there employed by shoemakers. *C. cardiochilum* is similar to this in the form and colour of the flowers, and is beautifully figured in Williams's "Orchid Album," vol. iv., t. 176.

*C. punctatum* has been long known as an effective Orchid, the large panicles of flowers being produced freely, of a yellow tinge spotted with red, the lip being much brighter than the sepals or petals. It was discovered by Plumier in Hispaniola, and mentioned as "*Helleborus ramosissimus cauliculis et floribus maculosis*." Mr. Wm. Swainson introduced it from Brazil, and it first flowered in the Glasgow Botanic Garden in 1835.

*Cyrtopodium Saintlegerianum* has been described by Reichenbach as a new species, but it seems to differ so little from *C. punctatum* that it would be better regarded as a variety of that species with more highly coloured flowers. Mr. B. S. Williams has given an illustration in the "Orchid Album" of *C. punctatum* which appears to be identical with the *C. Saintlegerianum* recently shown at South Kensington by A. H. Smee, Esq., The Grange, Wallington, and then awarded a first-class certificate. The plant was, however, collected and brought over in May, 1883, by M. de St. Leger from Paraguay along with *Oncidium Jonesianum* and *O'Brienianum*, and it is just possible that the plant from which the figure above referred to was taken was really the variety *Saintlegerianum*, which is superior in colouring to any form of *C. punctatum* we have previously seen. Our figure was prepared from flowers sent us by Mr. Smee and shows the general character well. The panicles arise with the young growths, and as the former are freely branched they are well adapted for cutting.

Mr. G. W. Cummins, the gardener at The Grange, forwards us the following cultural note in reference to this handsome Orchid:—"It is of easy culture if potted with good drainage in a compost of rich loam, peat, potsherds broken small, and treated occasionally with a supply of liquid manure during the growing season (Clay's fertiliser being used for the plant under notice at the rate of one teaspoonful dissolved in a gallon of water). Soon after commencing the use of the manure many fibres were noticed shooting upwards from the thick fleshy roots. The temperature which suits it best is that of a warm house where *Vandas* grow well. The graceful Palm-like appearance of the foliage renders the plant attractive even when not in flower."

### THE WEATHER AND VEGETATION.

#### ENGLAND AND WALES.

##### BUCKINGHAMSHIRE.

THE past winter will long be remembered, or more especially that part of it dating from January 3rd to March 18th, for during this period, except on two nights, we experienced severe frosts and almost sunless days, with a cold wind ranging from north to east. On January 6th 8 inches of snow fell, which remained on the ground sufficiently to protect vegetation a little until the middle of February, when a slight thaw set in for two days. Since that time we have had occasional snow-

storms, which disappeared with the first glimpse of sun. The continued cold easterly winds, accompanied by sharp frosty nights, killed about half our Broccoli and spring hedding plants; Wallflowers, *Myosotis*, Pansies, &c., are much cut up, although since the change to warmer and showery weather plants that previously appeared almost lifeless are starting into growth. Trees and shrubs generally have suffered but little, and we should have abundant fruit crops, buds now only just pushing. Birds are very troublesome here at all times, and necessitate netting Gooseberries to save the buds. The coldest nights of the winter were on December 10th, 17° of frost; 11th, 15°; January 6th, 20°; 7th, 22°; 8th, 16°; 9th, 15°; February 8th, 15°; 9th, 17°; March 6th, 16°; 16th, 15°. Total number of degrees of frost registered from January 1st to March 18th, 451, as against 266 for the corresponding time last year.—CHAS. HERRIN, *Chalfont Park Gardens, Gerrard's Cross*.

PEAS sown 23rd November on a south border have stood remarkably well. At present they are from 2 to 3 inches above ground, and are a good plant. The forwardest at present is William I. We did not sow American Wonder in autumn last year, as we found it too tender for autumn sowing. Coleworts and Brussels have stood well; autumn-planted Cabbage, Ellam's, about half are killed. All Cauliflower plants where not protected are killed. Of Lettuce, Bath Cos and Hick's Hardy, about half the plants killed. Savoys and Cottagers' Kale have stood very well. Broccoli, Cooling's Matchless, Veitch's Spring White and Self-protecting, very much injured. Dilcock's Bride and Webb's Perfection have stood well, and look healthy. Celery, where not protected, is very much injured. Double Violets mostly killed where not protected, such as Marie Louise, Neapolitan, and Swanley White. Single varieties are much injured, but will recover. The most frost we had here in one night was 18°. It seems to me that the continual low temperature for so many nights and days has caused much damage to vegetation.—J. SMITH, *Mentmore, Bucks*.

##### CORNWALL.

THE weather has been unusually cold, a long prevalence of east winds, especially in February and March. No snow and frost except on three or four mornings, January 8th being lowest—viz., 28°, or four degrees of frost. The plants generally are uninjured. Pelargoniums and all tender succulents have not suffered in any way. Pelargoniums and tender plants were destroyed in 1881, but nothing like it has occurred this winter. The Narcissus and Potato crops were quite three weeks later than usual this season.—GEO. D. VALLANCE, *Gardener, Tresco Abbey, Scilly Isles*.

##### DERBYSHIRE.

AT last we have the ground cleared of snow and a cessation from frost. What pleasure this gives can only be felt by those who have been snowed and frozen up since January 11th. The intense cold in March has only been equalled by that in January, 1880, during my location in Derbyshire. For twenty-six consecutive days and nights the thermometer never once rose above freezing point on a north wall, but varied between 4° and 31°. Vegetation in this neighbourhood is in a sorry plight, Brussels Sprouts and Broccoli being almost a mass of decayed matter, and the autumn-planted Cabbage less than when put in. The effects on the more tender of herbaceous plants I have not yet been able to discover; but I dread the worst, as the common Laurel and Yews show too plainly what they have had to brave.—WM. ELPHINSTONE, *Shipley Hall Gardens*.

##### DEVONSHIRE.

FOR the last six months the weather has been a continued change. After a dry summer September came in with a heavy rainfall; rain fell more or less for fifteen days. It had the effect of starting all shrubs and vegetables into active growth. October was very stormy, rain fell on fourteen days. November was very fine up to the 24th; in the next six days 3 inches of rain fell, the weather became much colder, and on December 9th we had 13° of frost; 10th, 10°; 11th, 17°; 12th, 11°; the remainder of the month was cold for this part of the country. January began with storms of rain and snow, and sharp frost followed on the 8th, 16°; again on the 21st, 18°, this is the lowest registered here, though 3 feet above ground, and snow covered the ground 2 inches in depth for seven or eight days. February was much finer, scarcely 1 inch of rain fell, and less frost was registered; 10° on the 22nd, again 10° on the 26th. March came in "like a lion," and continued so up till to-day, the 18th, the last fifteen days frost varying from 2° to 15°, with a keen east wind, which has completely dried up all the grass. The effects of all this has been most disastrous to Broccoli. Wilcove and Model are standing fairly well, Penzance and Veitch's Spring White were the finest last year, many heads weighing upwards of 12 lbs.; these are mostly killed this year. There is a paucity of Pear and Apple buds, and they will be very late. The young shoots of *Euonymus* are cut. *Eucalyptus* are all killed to the ground. Fuchsias are much cut, but the Myrtle, Escallonia, Japanese shrubs, and climbers are free from injury. In the borders many biennials have suffered; Sweet-scented Alysias we grow in quantity on walls are unburt. Stocks are all safe, but want warm weather to start them into growth. Everything is very late here. Thermometer 1 foot below the surface shows a temperature of 37°. Scarcely a Primrose to be found on the banks, or a Daffodil in the fields, of which there is usually abundance weeks before this time. I forgot to say Veronicas and Coronillas are very much injured with frost, but not killed. These gardens are rather exposed, and a great height above the sea. The villages near are very much warmer, being in the valley of the Yealmon river.—GEO. BAKER, *Membland Hall Gardens, Plympton*.



WE have experienced a very long and trying winter for the garden. Frost was registered for the first time on the 25th of September, being the earliest date on which it has occurred during the past twelve winters, being the limit of my experience of the Devonshire climate. Though it commenced thus early, having our tender vegetables and flowers destroyed, yet during the next two months frost was only registered on five occasions for each month, the minimum also for each being 5°. October was a rainy month, rendering the gathering and storing of fruits in such a dry condition as one would wish rather difficult. December was dull, frosty, and cold, nineteen nights having frost registered. The cold seems now to have set in, for January records show twenty-two, and February, twenty-four frosty nights. The first month of the year rain fell frequently

vegetable shed, from which place batches are taken as required to the forcing house. The same with Asparagus, it was taken up and heeled in where it was easy of access whenever required for forcing. Rhubarb covered outside has come on very slowly, so much so that we have been obliged to take up extra roots and place in the forcing house. Parsley roots only attained to a very small size last year, consequently that has been scarce.

Fruit trees have their buds well retarded, so much that we hope to escape the sharp frosts that frequently prevail when they are in bloom. Our Apricots, which were in full bloom on the 10th of March last year, the date on which our cloths were put up for protecting them, have only a few dozen blooms expanded at the time of writing. Peaches and Necta-



Fig. 46.—CYRTOPODIUM PUNCTATUM VAR. SAINTLEGERIANUM.

during the day, and with frosty nights, evergreens, such as are not perfectly hardy, suffered much, Camellias, some of the Hybrid Rhododendrons; Desfontanias were very much cut, while Veronicas were killed.

Green vegetables had become exceedingly scarce. Broccoli were very small, owing in great part to the preceding dry summer and autumn, and have been cut by May and used for greens, the chances being that only very small heads would have been formed. Borecole and Kale that had been topped before Christmas have scarcely broken again. Celery, where not protected during the cold of January and February, was destroyed. Brussels Sprouts have been seriously cut where exposed, but our own have yielded a continuous supply. Spinach made very little growth, but being perfectly hardy, has been valuable. Turnips have not yielded any greens, but the roots have remained in fine condition for use, Veitch's Red Globe being an excellent winter Turnip, in fact we grow it all the summer, for after it has thrown up its flower stems in summer it is excellent for table use; not so with most other varieties. Seakale roots are all taken up before Christmas and stacked in a dry state in the

rines cannot be out until April has advanced. Pears are swelling their buds since the mild and rainy weather has set in. Apples are very backward, indeed scarcely making a move, but together with Pears are well set with bloom buds, even though we had such an abundance last year. Plums and Cherries are equally backward, and are thickly studded with bloom buds. Gooseberries have been attacked by the bullfinches and sparrows much more than usual. These are just bursting their foliage. At present there is every prospect of another fruitful season. Planting operations have been much retarded where left till spring. Our fruit trees were all planted, and others lifted that required, some time before Christmas. The mulching of decayed manure placed around each being again mulched with long stable manure, and pegged down to prevent the birds from digging it out. This keeps the borders tidy, being as neat now as when put on four months ago, and will remain so during the coming spring and summer, providing also against drought.

The great change that has taken place will cause rapid strides to be made a few days only having brought out the Daffodils, Primroses, &c.,



and we shall soon be tempted to forget the experiences of the late bitter cold weather in the warm and sunshine of genial spring.—D. C. POWELL, *Powderham Castle Gardens*.

## ESSEX.

THE weather experienced has been generally cold and sunless here, about two miles north of the Thames, in a low and damp situation. The fogs have been heavy, no very severe frosts, but continuous until the 20th. The frost has not been out of the ground in the shade since the beginning of January: 17° of frost is the most registered. The absence of snow during February and March has had a bad effect. Shrubs are uninjured, but vegetables are destroyed, unless protected. Cabbage stumps killed, nine-tenths of the Savoy tribe also; Brussels Sprouts have held their own again, Lettuces nearly all gone, Spinach less than at Christmas, autumn-planted Cabbages nearly all perished.—J. GADD, *Belhus Gardens, Aveley*.

## LANCASHIRE.

ALTHOUGH the winter has been long and severe for this neighbourhood, vegetation generally has not suffered to any great extent. The most harm has been done to annuals and biennials, such as Candytuft, Antirrhinums, Campanulas, and similar plants. Carnations and Roses have suffered not so much from the severity of the weather as from the continual thaw during the day for the past month. Many of the former have been lifted out of the ground, and will therefore succumb. The latter, such as *Souvenir de la Malmaison* and *Tea* varieties, will have to be pruned hard back, they are all right at the base. Stocks, Wallflowers, Anemones, and spring-flowering plants have suffered much from the same cause. Rabbits have done much mischief, having barked the fences, Apple trees, Hollies, &c., that they could get at, as well as cleared off Carnations, Pinks, and all plants of a similar nature. This has been the longest and most sunless winter experienced during the ten years I have been in this neighbourhood. We have on several different occasions registered more frost, for instance in 1882, when the thermometer fell below zero, and vegetation suffered more than has been the case this year. We have only registered 16° of frost here, which was on the morning of the 7th inst. February has generally been mild, and brought fruit trees into blossom early only to be destroyed by late frosts. Everything is fully one month behind, and I think we may look forward for a good fruit year.—W. BARDNEY, *Norris Green Gardens, West Derby, Liverpool*.

## LEICESTERSHIRE.

THE coldest nights we have had this winter were—September 26th, 26°; 27th, 27°; 28th, 26° Fahr. November 16th, 17°; 17th, 23°. December 8th, 17°; 11th, 13°; 33rd, 20°. Feb. 24th, 19°. March 4th, 16°; 5th, 17°; 7th, 9°; 8th, 15°; 9th, 21°; 10th, 16°; 11th, 19°. These were the lowest readings of the thermometer. Probably the frosts of September did more damage than all the rest during winter, and will most likely be remembered for many years to come by gardeners, nurserymen, and florists, most of whom must have suffered seriously; some of the latter in this district (who are not in a very large way) have estimated their losses at upwards of £50 each. Their principal damage, I think, would be in *Chrysanthemums*, which were a general failure. *Azaleas* suffered a great deal, the bloom buds falling off as soon as they were put into the forcing house. The principal injury during the winter has been to vegetables; Broccoli and Cabbage have suffered very much. I have never seen spring Cabbage cut up so before. Vegetables have been very scarce about here, principally owing to the ungenial weather in the summer and autumn. For several days the thermometer ranged from 70° to 80° during the day in the shade; at the same time the night temperature would range from 34° to 40°, and many vegetables did not grow large enough to cut; this is one cause of scarcity, and scarcely any growth was made after the sharp frosts in September. As far as I can judge at present very little damage has been done to shrubs and Coniferae. An unusual quantity of snow has fallen this winter, and the ground in many places was covered from Feb. 20th until March 18th, when a change to milder weather set in, which I hope will continue.—J. L. B.

## LINCOLNSHIRE.

THE weather has been very severe in this district for the past nine weeks. Snow fell on January 8th, and in all ten days snow fell; sharp frost on the 20th, 14°; temperature very low all the month. In February snow fell on five days, sharp frost on twenty-six days, greatest on the 7th, 14°; temperature very low all the month. March, heavy fall of snow on the 1st, 6 inches; very sharp frost on the 8th, 22°. From the 1st of January to the 18th March we have only had five nights without frost, and the ground has been covered with snow more or less from the 8th January to the 18th March, when we have had a change. Broccoli, Brussels Sprouts, Greens of all kinds are very much injured—in some cases past recovery. Portugal and common Laurels, Aucubas, *Laurustinus*, and *Arbutus* much injured. I am afraid Apricot huds are much injured, but must wait till the huds unfold to see the full extent of damage done. Garden operations are far behind. Turnips have decayed on the ground through the severe frosts.—DAVID LUMSDEN, *The Gardens, Bloxholm Hall, Lincoln*.

## MONMOUTHSHIRE.

THE winter of 1885-86 will be remembered by horticulturists on account of its severity and the consequent results—injury to vegetation and heavy coal bills. Fortunately many plants have been partially protected by snow from the most intense frosts; but here the snow itself wrought considerable damage amongst trees and shrubs. In the first storm it fell so suddenly and densely, and being unaccompanied by wind it laid heavily

on the branches, and many were broken down by its weight. Amongst Coniferae, tall specimens of Junipers and *Cryptomeria japonica* suffered most, and before they could be relieved from their burden—and many deciduous trees, especially Acacias, Elms, and Oaks—have lost large branches.

In the vegetable garden the crops belonging to the Brassica family are much damaged, the Broccoli particularly so. Quite three-fourths of them are killed, while the other are crippled. Winter Spinach is shrivelled, and Endive, Parsley, and Celery where unprotected was greatly injured. The greatest depth of snow we experienced was 9 inches, and the most severe frost 26°. There is an old adage, "It's an ill wind that blows no good." Some good we may hope to derive from the protracted inclement weather—viz., late blossoming of fruit trees, and their escape from spring frosts.—THOMAS COOMBER, *Hendre Gardens, Monmouth*.

## NORTHUMBERLAND.

MARCH, 1886, will be long remembered in Northumberland as one of the severest on record. On the 1st, 2nd, and 3rd snow fell continuously, and drifted into immense thickness, from 5 to 15 feet, blocking all traffic on roads and railways, and in this part of Northumberland people had to be content without their letters and newspapers for four days. Such a thing has not occurred since this line of railway was made nearly forty years ago. In looking over the old registers of the weather, I find the thermometer has only on two occasions been so low in March since the year 1841. From that year to 1867, the mean temperature for March was 40°. On March 17th, 1867, there was 14°, and from that year to 1881 the mean temperature was 37°. On the 1st and 2nd of March, 16° and 15° consecutively, and on the 6th, 9th, and 13th of the present month we had 13°, 13°, and 12°; and from 1881 to the present month I find the mean temperature still declining to as low as 34°, which bears out Mr. Thomson's remarks in his letter to the *Scotsman*, and also in his excellent little book, that our climate is deteriorating. And in looking back fifty years in our old meteorological register I find such observations as "Fine day; warm; genial growing weather;" but now our summers are much colder, and we have now, as a rule, to write, "Dull cold day throughout," or "Hazy day, with cold east wind."

We have not been able to get any seeds in the ground yet, as we have had no good weather since Christmas, and shall not be able to do so all this month, let the weather be ever so favourable. Our early Cabbage have stood well, and come out fresh from under their deep covering of snow. Hardy fruit is now on the move. Apricots are showing some flowers, and should we have no frosts later on we expect as good a crop as last year.—D. INGLIS, *Howick Hall Gardens*.

## SUSSEX.

At last, on March 19th, we had an agreeable change of weather. This was the first day the soil had been in a fit state to receive any kind of small seeds, it having almost continually frozen since the new year. Of the seventy-seven days up to the 18th of March the thermometer fell below the freezing point on fifty-eight nights. There has been no extreme frost. The lowest readings were—January 8th, 19°; February 8th, 9th, and 10th, 22°; March 7th and 17th, 20°. The eighteen days of March have certainly been remarkably severe, only on the night of the 2nd it did not freeze; and the readings for the eighteen days give an average minimum temperature of 25½°. The snow that fell on the 1st March was all gone except where drifted the next day, so that vegetation has suffered from the effect of the frost very much. Lettuce and Parsley have vanished; the edges of Cabbage and Broccoli leaves are withered as if scorched. Buda Kale is about the only thing that has not suffered. Many vegetables, such as autumn-sown Onions and Cabbage in the seed beds, are thrown out of the soil and are withering on the top; and even large labels in the kitchen garden have been gradually worked up till they have tumbled over, where they were firmly inserted in the autumn.—R. INGLIS, *Cuckfield, Sussex*.

## WARWICKSHIRE.

WE have had a long cold winter with dark sunless days and heavy falls of snow, but not very severe frost, the most we registered being 18° on the 6th of March. No damage has been done to shrubs. Vegetables, such as Broccoli, winter Cabbages, &c., have suffered most, which is always the case with such frosts as we had in the beginning of this month with bright sunny days. Vegetables are very scarce in this district. We had a dry summer with little rainfall until the second week in August; then the weather broke up with a hailstorm such as has not been witnessed here since 1851. Wheat and Oats were nearly destroyed. I have charge of a farm here in conjunction with garden and estate work. I threshed 20 acres of grand straw crop of Oats, and they did not produce two quarters per acre. I enclose a leaf of Aucuba to show the effect the hail had on them, and everything in the shape of green vegetables were destroyed. A pond in the kitchen garden containing Water Lilies had the appearance of a huge bowl of fine "mint sauce."—WILLIAM BROWN, *Solihull*.

## WESTMORELAND.

SUDDEN changes in the weather have been experienced this long winter, which began, I may say, on September 26th, when 6° were registered. March came in with exceptional severity, and has continued more or less to this date; 22° of frost on the 7th inst. is the lowest temperature recorded this winter. The fierce north-east winds at the beginning of this month soon played sad havoc amongst the green stuff; Cabbage and other plants have disappeared. The Broccolis were laid as usual in November, and the winter ones are useless. Dilcock's Brile, Leamington, and Lauder's Goshen amongst the spring ones, seem uninjured as yet.



Brussels Sprouts are black and withered, and Chou de Burghley unrecognisable.

Amongst shrubs, Portugal Laurels and Berberis Darwini already show the effects of the storms. There has been very little sunshine, which accounts for the slow progress in the forcing department. As it is no use lamenting, we have got all available materials made up into hotbeds, and Cauliflowers, Lettuces, Brussels Sprouts, &c., are coming on to make up for losses as soon as possible. Autumn-sown Cauliflowers are potted and in comfortable quarters, although those in hotbeds invariably come in use before them.—W. A. MILLER, *Underby Gardens, Westmoreland.*

#### WILTSHIRE.

THERE has not been such a prolonged period of frost in West Wilts for several years. In this neighbourhood the green garden crops have suffered severely, especially the Brassicas, which look as if scorched with fire. This in our case has been more the result of continuous and bitterly cold east winds than low temperature registered, for the lowest reading, 10°, = 22° of frost, was registered March 8th.—ALEX. MILLER, *Road Ashton Park, Trowbridge.*

#### SCOTLAND.

##### BANFFSHIRE.

THE winter here has on the whole not been remarkable for its great severity, either as regards a very low temperature or great snowfall; but notable for its very low temperature through nearly the whole of February and up to the present date, March 17th. Frosty nights with frequent showers of snow have been the most prevalent during the last six or seven weeks, snow often melting in exposed places through the day. Four to five inches deep on two occasions is the most we have had through the winter, and roads have not been drifted to interrupt communication. Winter commenced here early. We began filling the icehouse on the 18th November, an unusually early period. December was a mild month and the year began mild. The temperature in the shade on January 1st was 56°. The weather continued moderately fine until the middle of the month, when frost set in. On the 19th the mercury fell to 15°, or 17° of frost. This, and 16° on the 12th of March, are the lowest registered here. Vegetation is very much retarded, but hardy plants have shown no signs of being injured in this locality. Some Apricot blossom opened on a south wall under protection on the 12th inst. was injured by the frost above mentioned.—JOHN WEBSTER, *Gordon Castle Gardens.*

##### BUTESHIRE.

THE weather here has been both a long and a severe one for our west coast. The frost here is never very severe; for November our lowest reading was on the 14th, 24°; and for December the lowest was on the 5th, 19°; and for January the lowest was on the 6th, 20°; and for February the lowest was on the 4th, 21°; and on the 6th of this present month our readings were 20°, or 12°. We have had a continuance of snowstorms since the 4th of January, but we had no damage done to shrubs, as they are all kept trimmed; but many that stood former winters in our kitchen garden have been killed this winter, such as autumn-sown Onions, Cabbages, Savoys, Lettuces, and some other seedlings that stood in former winters without protection.—DAVID MCAUSLIN, *Castle Gardens, Brodick, Isle of Arran, Buteshire.*

##### DUMFRIESHIRE.

IN November there was frost on fourteen nights, giving a total of frost of 100°, the most severe being on the morning of the 18th, when the thermometer stood at 12°, or 20° below freezing. This month was characterised by sudden changes from frost to thaw. December.—There was frost on sixteen nights with a total of 154°, the most severe being on the 11th, when 20° of frost were registered. This month was also remarkable for the number of times it changed from frost to thaw. January.—There were twenty-five nights of frost, with a total of 248°. On the 17th, 18th, 19th, and 20th there were respectively 27°, 27°, 28°, and 26° of frost. February.—There were twenty-four nights of frost with a total of 199°. There was a good deal of snow, lying nearly the whole month. March.—It has been frosty every night up to date, the sixteen nights giving 160°. On the 7th and 12th there were 25° and 21° of frost respectively. The 1st and 2nd gave such a continuous snowstorm as has rarely been seen by anyone. Vegetables stood well all through February, but since the snow has gone this month almost every green leaf except Leeks have disappeared.—DAVID THOMSON, *Drumlanrig Gardens.*

##### MIDLOTHIAN.

THE rather severe and protracted winter has scarcely left us yet, and it is not safe to estimate the amount of injury done by it to vegetation before we see the effects of warmth and bright sunshine on weakened plant life. Up to the end of 1885 the weather was very much of a normal character, but with the advent of the new year the temperature began to fall below the average and has remained so till this date. The minimum was reached on the 19th and 20th January, when the thermometer registered 10°, or 22° of frost; and the maximum on January 1st and to-day (20th March), the thermometer rising to 52° in the shade. From the 1st to the 18th of March more or less frost has been registered every night, the severest being 18° of frost on the morning of the 7th. Snow fell heavily on the 1st and 2nd of March, which in many places helped to protect vegetation from the severity of the frost, although in open places the strong gale of the 2nd swept it clear off and left vegetation fully exposed to the cold. In such places vegetation has suffered much from the daily freezing and thawing, as well as from the keenness of the blast. The snow

still lies deep in many places, especially in the upper parts of the county, and it will be some time before the heaviest of the wreaths formed by the gales of the 2nd and 16th melt clear away.

So far as can yet be seen trees and shrubs have suffered comparatively little. Where exposed to the full sweep of the frosty gales evergreens have had their foliage browned, and probably will lose a portion of it prematurely, but otherwise there is no sign of any permanent injury, such as we have seen after the severe winters of recent years. Fruit trees are perfectly safe, as, owing to the continued low temperature, they have remained dormant up to the last day or two. They are generally full of flower buds, and with a genial spring promise an abundant crop. Vegetables, especially where exposed to the blast and on heavy damp soils, have been a good deal cut up, but on warm and dry soils they have stood fairly well, and where protected by the snow even Broccoli is fresh and good. Brussels Sprouts and Borecole have of course formed the staple "greens" for the last month, Cabbage and Savoys having in most places melted away with the continued freezing and thawing, almost of daily occurrence through December and January. Autumn-sown plants of Cabbage, Cauliflower, &c., have suffered greatly, and there will be a great scarcity of them in some parts for early spring planting. At present the season is about three weeks later than the average, but the soil is in excellent condition to receive the crops, and with favourable spring weather the lost time would soon be recovered.—M.

THIS winter has been long and severe, and remarkably changeable. Its effects on vegetation no doubt have been severe, the ground here being coated with snow to the depth of 18 inches for the last month. The frost we have had this month has been very severe, and would have thrown herbaceous and other spring-flowering plants out of the ground, but luckily the covering of snow we have had so long has been a great protection. March has been one of the worst for snow and frost that has been experienced by the oldest people in this district. We are three weeks or a month later this season from last. From the 1st of December, 1885, to March 16th, 1886, rain fell on twenty-three days, amount 3 inches; snow fell on eighteen days; sunshine fifty-five days more or less; frost fifty-eight days. Total amount of frost 417°.—J. W. MACHATTIE, *Newbattle Abbey Gardens, Dalkeith.*

##### PERTSHIRE.

NOT since 1881 have we experienced such a severe winter in this district; we had then the frost much more severe on several nights, but this winter has been much more protracted, as since 5th January to date (20th March) with the exception of a few days in February, the ground has been covered with snow to a depth of several inches, and there are few nights that frost has not been registered, the severest frost occurring on the 19th January, when the glass went down to zero. Fruit trees and shrubs are apparently uninjured; vegetables, however, have suffered severely, and vegetation is far behind.—JAMES BROWN, *Abercraigney Gardens, Crieff.*

##### SELKIRKSHIRE.

THE week ending March 13th will be remembered for the amount of frost which was recorded; we had 115° in the week. Nature, when released from the bonds of frost and snow, may be expected to advance by leaps and bounds, and certainly she must do so to make up for lost time. Seed time, we are told, will surely come—certain it will be a late one. We are apt to think present time afflictions and annoyances the worst ever experienced, and we may sometimes be wrong when we abuse the weather as the "worst we ever knew;" but we may be pardoned for thinking that this March has certainly proved extremely severe and trying.—SCOTIA.

##### WEST LOTHIAN.

THE weather here up to January 3rd was seasonable. Since then to about the middle of February it was very severe, with frost and snow stopping all ground work. After a break of a week to ten days of mild weather, it again came in with the 1st of March very severely from the east, with wind and blinding snow, which continued more or less until the 19th, when a change to spring weather came and still continues. 23rd March—Peaches, Apricots, Pears, Gooseberries are swelling their flower buds. The two former will soon be in flower if the change continues. Shrubs, Portugal Laurels especially, are scorched in exposed places as if they had been burned. Roses are as yet dormant, but may grow from the root and the old wood. Aucubas have fared the same as Laurels; perhaps the sea may account for the scorching, as we are within three minutes walk from the shore.—JOHN MOYES, *Dalmeny Park, Edinburgh.*

##### IRELAND.

FOR the past twelve years here we have had more severe seasons for the time being, but not so protracted. Our first severe frost was in first week of December, lowest temperature 15° of frost; next, second week in January, lowest temperature 13°, on 7th. Fourth week we had a very sharp week, lowest temperature 18° of frost on 22nd. Our most severe frost in February was on the 26th, 10° of frost. This month has been one of the most severe I remember, ushered in by a heavy fall of snow, making roads impassable where it drifted. Where the sun did not reach, it is still lying. Ground was again covered with snow on the 16th and 17th first week of this month. Our sharpest frost was on the 4th, 14° of frost, the same in the preceding week. Since then 10° has been the most severe. Vegetation seems to have suffered less than in previous years. I was dubious about our advanced Pear buds, but they seem to be safe.—WILLIAM LEES, *Gardens, Hillsborough Castle, Co. Down.*



## HORTICULTURAL SHOWS.

BATH.—MARCH 24TH AND 25TH.

ALTHOUGH only a comparatively limited number of competitors entered for the various good prizes offered, the second annual Exhibition must be classed as a decided success.

**Bulbs.**—There were four exhibitors of eighteen Hyacinths. Mr. S. P. Budd (W. Taylor, gardener) leading with fine massive spikes of the leading varieties. Messrs. G. Cooling & Son, Bath, were awarded the second prize for a very creditable collection; and Mr. J. Cypher, Cheltenham, took the third prize. With twelve Hyacinths in six pairs, Messrs. Cooling & Son were first. Mr. Budd was first in two other classes for Hyacinths, and Messrs. Cooling & Son second. While in a class for twelve varieties Mr. S. Tredwell (J. Durbin, gardener) took the lead; and Mr. Budd was second. With six varieties Mr. T. Jolly (A. Hawkins, gardener), and Mr. Budd were awarded equal firsts, and Mr. C. H. Dutton an extra prize. Messrs. Cooling had the best twelve pots of Tulips. Mr. Budd was a good second; a certificate of merit being awarded to Mr. C. H. Dutton. Messrs. Budd and Dutton were also successful in the other classes for Tulips. But few Polyanthus-Narcissi were shown. Messrs. Cooling had the best display of Daffodils, and these including some of the best varieties. There were some good Amaryllis shown by Mr. Tredwell, the second prize going to Mr. T. Jolly.

**Flowering and Fine foliage Plants.**—Three classes were provided for Orchids, and these were a very attractive feature in the Show. Mr. J. Cypher had the best six, consisting of *Lycaste Skinneri*, bearing ten fine blooms; *Cattleya Trianae rosea*, eight good blooms; *Cattleya amethystiflora* with three handsome spikes; a fine pot of *Dendrobium nobile*; *Cattleya Trianae* with five fine blooms, and *Cypripedium Lowi* with three strong flowerstems. Mr. E. E. Bryant (W. J. Mould, gardener) was second for neat plants; Messrs. Cooling were first with three Orchids, and Mr. R. B. Cater second, the exhibits being very creditable in each instance; Mr. Cypher was also first for a single specimen Orchid, showing a strong plant of *Cypripedium villosum* with twenty-two fine blooms. Roses in pots were well shown by Mr. Budd and Messrs. Cooling, who took the prizes in the order named, the best plants being Madame Villermoz, Madame Thérèse Levet, Violette Bouyer, Madame Lambard, Rubens, Catherine Mermet, La France, Niphetos, and Marie Guillot. Mr. Bryant had the best four specimen flowering plants, and Mr. Cater was second, included among the latter being a grand example of a seedling Amaryllis, bearing eleven strong flower spikes; Mr. Bryant was also most successful with specimen Indian Azaleas. Only two specimen fine-foliaged plants were shown, but these comprised several noble Palms, notably *Cycas revoluta*, *Kentia canterburyana*, *Latania rubra*, and *Latania borbonica*; Mr. Bryant and Mr. W. C. Drummond second. The best miscellaneous group of plants was arranged by the Messrs. Cooling, Orchids, Roses, Arums, Azaleas, Ferns, and Palms being effectively grouped; Mr. Drummond was second. For a smaller group Mr. E. E. Bryant was first, the central plant of *Dracæna Lindenii* showing to advantage among numerous Palms, Orchids, and other choice plants. Three very pretty baskets of plants were shown, the first prize going to Mr. Tredwell, and Mr. R. B. Cater was a very good second, several Orchids being employed by the latter, while Mr. Tredwell made a bright centre of Amaryllises, Narcissi, Gloxinias, and Azaleas, a fringe of pot plants of double Violets giving a good finish to the basket. Messrs. Cooling had grand pots of Lily of the Valley, and was awarded the first prize, Mr. Budd taking the second. Mr. Tredwell was first for a very pretty collection of herbaceous plants in pots, and Messrs. Cooling second, and these exhibitors occupied similar positions with collections of Violets.

**Cut Flowers.**—The vases were not particularly good. Mr. E. Thomas was first and Mr. W. Dobson second. The prizewinning bouquets were very large and heavy. Mr. E. S. Cole was first and Mr. Winstone second, both coming from Bristol. Orchids, Roses, and Lily of the Valley were principally used. Mr. Cole was also first with a spray for a lady's dress, and Mr. W. Dobson second. Four good lots of cut Roses were shown. Mr. Budd was easily first, having fine bright blooms of Rubens, Catherine Mermet, Souvenir d'un Ami, Duke of Wellington, W. F. Bennett, Alba rosea, and Madame Victor Verdier. Mr. J. Chaffin was second with rather too fully blown Teas in variety, and Messrs. Cooling were third with a bright fresh collection.

**Fruit and Vegetables.**—Mr. W. Duck (J. Chedzey, gardener) took the first prize for two bunches of Grapes, fairly well kept Lady Downe's and Black Alicante, and an extra prize was awarded to Mr. W. Iggulden for a well coloured dish of Strawberry Princess Frederic William. Mr. R. Hooper Taylor was first for a dish of Pears, and Mr. J. Smith second, both having Beurré Rance in good condition. The best dish of Apples—Reinette de Canada—was staged by Mr. E. Thomas, the second prize going to Mr. A. T. Hall for a well kept dish of Ribston Pippin. The first-prize bunch of Seakale, shown by Mr. W. Smith, was very large, and Mr. T. Evry was a good second. Mr. E. Thomas was first for Asparagus, and Colonel Grant (G. Snow, gardener) second.

**Not for Competition.**—Twelve Cyclamen persicum shown by the Rev. E. Handley were remarkably fine, there being as many as eighty large blooms on a plant, and were generally considered the best ever seen in Bath. Messrs. Cutbush of Highgate, London, also had a considerable number of well-grown Cyclamens in their group of miscellaneous flowering plants and bulbs. Mr. J. Cypher, Cheltenham, arranged a fine group of plants, including several Kentias and other serviceable Palms, as well as various Ferns and fine-foliaged plants, among which were interspersed a great variety of good Orchids. The most noteworthy of these were *Cattleya Trianae* in variety, *Lycaste Skinneri*, *Odontoglossum Rossi majus*, *O. Alexandræ*, *O. Halli exantoglossum*, *Dendrobium Wardianum*, *D. crassinode*, *D. luteoflorum*, *Cymbidium eburneum*, *Cypripedium Argus*, *C. biflorum*, *C. Boxallii*, *Cattleya citrina*, and *C. labiata* and *C. Percivalliana*.

CRYSTAL PALACE.—MARCH 26TH AND 27TH:

THOUGH competition was not so keen as usual, a bright little exhibition was provided at Sydenham on Friday and Saturday last, which attracted a number of visitors. Mr. W. G. Head made the most of the plants at his command, and arranged them in the centre transept near the large stage,

numerous contributions from the Company's houses assisting materially in improving the display. When the Palace was lighted at night with some hundreds of coloured lamps the effect was extremely beautiful.

Bulbs constituted the chief portion of the exhibits, the leading prizes being taken by Mr. H. R. Wright, Lee, and Messrs. H. Williams & Son, Finchley, amongst the nurserymen; corresponding prizes in the amateur classes being gained by Mr. T. N. Penfold, gardener to the Rev. Canon Bridges, Beddington House, Beddington; Mr. John Horsley, 6, Selwood Place, South Kensington, and Mr. A. Luff, gardener to R. R. Hyatt, Esq., Heatherset, Leigham Court Road, Streatham. The Hyacinths were generally the best, especially those from the trade growers, but they do not seem quite up to the standard of past years, and Tulips are not nearly so satisfactory. The Lilies of the Valley from Finchley were extremely well grown, with fine spikes of bells, and very seldom are they seen in such good condition. Cyclamens were contributed by the St. George's Nursery Company and W. Clay, Esq., Kingston, as well grown and flowering as freely as we are accustomed to seeing them from these well-known growers. Mignonette was not very extensively shown, but Mr. Luff had nine fine examples of tree Mignonette, large healthy plants flowering profusely, amply meriting the premier prize awarded for them.

A handsome group of stove and greenhouse plants was staged by Messrs. J. Laing & Co., who were awarded the first prize in the class. A choice collection of Palms, Ferns, and Azaleas, with Orchids, chiefly *Dendrobium nobile* and *Wardianum*, was shown, and being effectively arranged in a prominent corner position, the group was a valuable addition to the exhibition. Mr. H. James, Lower Norwood, who was placed second, had an elegant varied group of *Lachenalias*, *Cinerarias*, Azaleas, Orchids, &c., margined with *Isolepis*. The miscellaneous exhibits for which special prizes were awarded were as follows:—Groups of Cyclamens from W. Clay, Esq., and the St. George's Nursery Company; groups of Hyacinths from Mr. H. R. Wright; collections of Daffodils and other flowers from Messrs. Barr & Son, Covent Garden, and Mr. T. S. Ware, Tottenham; Cyclamens from Messrs. Cannell and Sons, Swanley; Roses in pots from Messrs. Paul & Son, Cheshunt; and fine-foliage plants from Mr. F. Bause, South Norwood.

First-class certificates were awarded to Messrs. J. Laing & Co., Forest Hill, for *Imantophyllum robustum* Mrs. Laing, *Cattleya Lawrenceana* and *Begonia Gloire de Sceaux*, which have been previously described.

## GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY.

THE annual Spring and Hyacinth Show of this Society was held in St. Andrew's Hall on Wednesday, 24th March. The protracted severity of the weather made it a source of great anxiety to those interested in the success of the Exhibition, but fortunately a favourable change occurred a few days before the Show. The exhibits were equal in merit to those of former years, in some instances superior. The Hall was bright with flowers, and would have been improved in appearance had some large specimen foliage plants been arranged throughout. This is a want that has been felt in Glasgow shows for a number of years, exhibitors contenting themselves with sending their easiest-handled plants, which have even a smaller appearance in so large a hall. The decoration of the platform was admirably done by Messrs. Austin & McAslan, who staged hundreds of such spring plants as *Rhododendrons*, Azaleas, and Lilacs, and some very highly coloured Ghent Azaleas, much admired. Messrs. Smith & Simons had a large collection of plants of the same kind, which were remarkable for the vigour and size of the flowers. Mr. John Sutherland, Lenzie, contributed a collection of choice plants, including a large number of seedling Azaleas of more than average merit, were highly commended. Messrs. Dobbie & Co., Rothesay, had on exhibition six extraordinary large Pansies, very highly commended. Mr. Peter McKenzie had six magnificent bouquets of choice flowers; one large bouquet of Roses, and one of white Camellias and Lily of the Valley were specially fine and highly commended by the Judges.

In the nurserymen's class for best collection of bulbous plants in flower Mr. Peter McKenzie, Paisley, was first with a splendid group; Mr. Sutherland, Lenzie, a good second. In the class for twelve plants for table decoration Mr. Sutherland had first prize with very uniform plants. He also had first prize for a hand bouquet of white Camellias and choice Orchids artistically arranged. In the class for eighteen Hyacinths, distinct varieties, Mr. P. McKenzie was again successful in securing first place with magnificently grown and well-finished specimens of the following varieties—viz., *Mimosa*, *La Grandesse*, *Howard*, *Czar Peter*, *Alba superbissima*, *Gigantea*, *Charles Dickens*, *Ida*, *Koh-i-noor*, *Vuurbaak*, *Lord Derby*, *General Cavaignac*, *King of the Blues*, *Mont Blanc*, and *Le Prophète*. Mr. Sutherland had second and Mr. Lister, Rothesay, third prizes. In the gardeners' and amateurs' classes for pot plants, Mr. Thomas Hogg, gardener to John Gordon, Esq., Aitkenhead, was the most successful competitor, a position he has maintained for many years. In the class for six stove and greenhouse plants he had first prize; specially noticeable were his *Rhododendron* Countess of Haddington, *Imantophyllum miniatum*, and *Dendrobium nobile*. He was also first in the following classes—three specimen Azaleas varieties, three Azaleas varieties in 8-inch pots, three Amaryllis, three Orchids, two *Gleichenias*, six Cyclamens; and in cut flowers first for six trusses hardy *Rhododendrons*, and six blooms Camellias. Mr. James Clotworthy, gardener to R. Ramsey, Esq., Langside House, had first prize for three stove or greenhouse plants, *Rhododendron* Countess of Haddington being his best plant. He was also first in the following classes—viz., three hardy *Rhododendrons*, two *Epacris*, and a specimen *Deutzia*; he was also awarded a special prize for a table of plants 12 feet by 6; Crotons, *Dracænas*, and Azaleas being very good. Mr. Mathieson, gardener to J. L. Henderson, Esq., Westbank, Partick, had the first prize for the best collection of plants to fill a table 12 feet by 6, a very fine specimen of *Dæmonorops palambanicus* being conspicuous in his collection. Greenhouse *Rhododendrons* and *Cinerarias* were admirably shown by Mr. Hutchison, gardener to J. B. Greenshields, Esq., Kerse, Lesmahagow, and Chinese *Primulas* by Mr. Gray, gardener to Rev. W. Turnbull, Lesmahagow. Mr. McLachlan, gardener to Alex. Hutchison, Esq., Langside, was first for Azalea *amena*, a very large specimen. In the class for twelve Hyacinths, distinct varieties, Mr. George Irvine, gardener to Mrs. Townsend, Pollokshields, was deservedly first, he also gained the first for six Hyacinths. Mr. H. Miller, gardener to William McOnie, Esq., Everslie, Pollokshields, had first place; he also had first prize in the following classes—viz., the most meritorious basket of spring flowers, six pots hardy



spring flowers, and four pots Crocus. The best Tulips came from Mr. Heron, Pollok Gardens, Pollokshaws, and Mr. Miller, Everslie. Mr. J. Mathieson had the best Narcissus. Mr. Heron and Mr. William Cowan, gardener to Captain Dick, Campbelltown, had first prizes for Lily of the Valley in pots not exceeding 12 inches and 6 inches respectively. Mr. George Meston, gardener to Morris Carswell, Esq., Pollokshields, had the best *Spirea japonica*. For collection of vegetables in eight varieties, Mr. James Heron was first, Mr. Thomas Hogg second, and third Mr. John McLean, Auchanames, West Kilbride.

Very much of the success of the Exhibition is due to the untiring energy and zeal of the Secretary, Mr. F. Gibb Dougall, and Mr. C. McDonald Williamson, Treasurer, who do everything in their power to promote the interests of the Society.—G. R.

#### WESTMINSTER AQUARIUM—MARCH 30TH AND 31ST.

THE first of the series of exhibitions announced to be held this season in the Westminster Aquarium was opened on Tuesday last. Liberal prizes were offered in thirteen classes, the total amount being nearly £100. The competition was good in the principal classes, and the display was one of the most extensive and varied that has been provided in London this season. Many of the collections of bulbs had, however, been exhibited on several occasions before, and were somewhat the worse for their journeys. The Hyacinths also, as remarked in reports of these shows, were not so fine as usual, but the Daffodils, Lilies of the Valley, and market plants formed fresh and beautiful groups. At shows of this character it would be wise to make the market plants a stronger feature, and by that means some highly effective displays might be obtained. An attractive programme has, however, been announced under the superintendence of Mr. R. Dean, the Rose Show and Strawberry Fête being two of the principal events.

At the spring Show Mr. H. R. Wright, Lee, and Messrs. H. Williams, Finchley, secured the chief prizes for bulbs, such as we have already repeatedly noted. They were also the prizetakers with groups of market plants, both staging very diversified collections. The Cyclamens were excellent, especially those from the St. George's Nursery Company, and W. Clay, Esq., Kingston. The best Cinerarias were from Messrs. J. Carter & Co., Holborn, who were awarded the first prize for fifty plants. Pretty collections of hardy plants were contributed by Mr. T. S. Ware and Mr. R. Dean, who were placed first and second respectively. Three large groups of Daffodils were arranged by Messrs. Barr & Son, T. S. Ware, and Collins Bros. & Gabriel, which occasioned the Judges some difficulty in making their awards, but ultimately the first prize was adjudged to Messrs. Collins for an exceedingly choice collection.

The non-competing exhibits comprised two stands of brilliant Zonal Pelargoniums from Messrs. H. Cannell & Sons, Swanley, including flowers of some grand varieties. Cyclamens were contributed by the St. George's Nursery Company and Mr. Clay, a stand of the Pelargonium *Volonté Nationale* being shown by Mr. Perkins, Leamington. Special prizes were awarded to all these exhibitors.

#### SOIL—MOISTURE AND VEGETATION.

A SOIL is made up of solid particles of different sizes, ranging from pebbles down to the finest dust; being irregular in shape the particles do not anywhere fit close together, like sardines in a box. Of course, however, all of them must touch one another in many places, so that those above are supported upon those below, and those below cannot get from under their burden because hedged in closely on all sides by their next neighbours. There are spaces around these particles of solid matter, between the many points where they touch one another, which also vary much in size from such as are no wider than the thickness of goldleaf to such as are large enough to thrust one's finger into. These spaces are occupied by air or water, sometimes by one and sometimes by the other. If always filled with water, the soil is no better than a bog; if always filled with air, it is only a barren desert. Water that falls on the surface of the soil and can find its way from one to another of the larger spaces will run down till it reaches the level of the standing water in the ground; just as water poured into a pipe in a well does not stop till it reaches the level of the standing water in the well. But water that gets into the smaller spaces may be held there, many feet above the level of the standing water; as if, having filled the upper part of a well with sponges, we should then pour water in, we know that much of it, being taken up in the very fine capillary tubes of the sponges, will never reach the bottom; it will stay in them till it dries out by evaporation into the air.

The best condition of the soil is thought, by those who have studied its relations to water and vegetation, to be that in which not only all the spaces too large to hold the water up contain nothing but air, but where a large part of the small spaces are also empty. Our upland crops do not thrive in soils so situated that all these smaller spaces near the surface are full of water. Vegetation is constantly taking up this small residue of water that is left in the soil after the surplus of rain has drained off and dissipating it into the atmosphere; and when the supply of water is not sufficient to meet this demand at least to a reasonable extent, the plant wilts, or, as in the case of Indian Corn, its leaves curl up. How the supply is replenished when the rains are few and far between is a somewhat puzzling question. Too much credit is given to the power that the soil is supposed to have of absorbing moisture from the atmosphere; the amount so absorbed is of small account except when the air is very damp, which is not its usual condition at such time when rain is scarce. The power residing in the plant itself of reducing its consumption of water is of much more account for saving it from death by drouth than any power which the soil has of supplying it with water by simple absorption from the air. Some plants can, if necessary, lower the rate at which they take up water by their roots and give it off into the air to one-tenth of the usual rate, without showing, at least for a time, any signs of suffer-

ing; and when the supply of water at the roots is more liberal they pump away again as fast as ever.

Some substances added to the soil check very much the rate of exhaustion of the water by vegetation; salt acts thus, and plaster appears to be particularly effectual. Thus the opinion common among farmers may be accounted for, that plaster lessens the danger of bad effects from a scarcity of water; they say it absorbs water. But this is out of the question; all the ground plaster that is sold has been exposed to the air for a long time before the farmer buys it, and it has had ample time and opportunity to absorb all the moisture it can from that source. But if it serves to lower the rate of evaporation of the soil-water into the air through the vegetation growing on the soil, it is plain that it may to some extent serve the same purpose as if it did actually absorb water from the air to be handed over to the plant crops according to their needs; it hushes the scanty stock of water in the soil, and forces the plants to be more economical in the use thereof. Some experiments with salt have shown that the soil of a grass plot to which the substance had been applied contained ten days after a rain had fallen twice as much water as did an adjoining plot which had received no salt; and the plants on the former plot were growing vigorously after those on the other plot had begun to show signs of suffering from want of water.—DR. G. C. CALDWELL (in the "*New York Tribune*").

#### ROSE SHOW FIXTURES, 1886.

FOR the guidance of those Societies which have not as yet fixed the dates of their exhibitions I append the following list of Rose Shows arranged to be held during the coming season by the National Rose Society and Societies affiliated with it.

Bagshot and Windlesham Rose Society, at Bagshot, Tuesday, June 29th.

Diss Horticultural Society, at Diss, Tuesday, June 29th.

Croydon Horticultural Society, at Croydon, Wednesday, June 30th.

Farningham Rose and Horticultural Society, at Farningham, Wednesday, June 30th.

Canterbury and Kent Rose Society, at Canterbury, Thursday, July 1st.

Reigate Rose Association, at Reigate, Thursday, July 1st.

Tunbridge Wells Horticultural Society, at Tunbridge Wells, Friday, July 2nd.

Eltham Rose and Horticultural Society, at Eltham, Saturday, July 3rd.

National Rose Society, at South Kensington, Tuesday, July 6th.

Cardiff Rose Society, at Cardiff, Wednesday, July 7th.

Ealing, Acton, and Hanwell Horticultural Society, at Ealing, Wednesday, July 7th.

Sutton Amateur Rose Society, at Sutton, Wednesday, July 7th.

Bath Floral Fête and Band Committee, at Bath, Thursday, July 8th.

Hereford and West of England Rose Society, at Hereford, Thursday, July 8th.

Hitchin Rose Society, at Hitchin, Thursday, July 8th.

Ipswich and East of England Horticultural Society, at Ipswich, Thursday, July 8th.

Maidstone Rose Club, at Maidstone, Friday, July 9th.

Cray Valley and Sidcup Horticultural Society, at Froggnal, Saturday, July 10th.

Wirral Rose Society, at Birkenhead, Saturday, July 10th.

East Gloucestershire Rose Society, at Moreton-in-Marsh, Tuesday, July 13th.

National Rose Society, at Birmingham, Thursday, July 15th.

West of Scotland Rosarians' Society, at Helensburgh, Friday, July 16th.

The only fixtures of Rose Shows not in connection with the National Rose Society that have as yet reached me are the two following:—

Crystal Palace Rose Show, Saturday, July 3rd.

Oxford Rose Show, Wednesday, July 7th.

—EDWD. MAWLEY, *Rosebank, Berkhamstead.*

DAFFODIL NOTES.—Much has yet to be learned in reference to Daffodils; so I would take the liberty of suggesting that your correspondents record anything that seems unusual through your columns. Though I have an almost complete collection of Narcissi, not half a dozen varieties out of doors in a warm southern aspect have yet bloomed. The dwarf little *N. nanus*, reaching about 4 inches high with me, only opened a week since. I use it as an edging to an herbaceous border, with St. Bridgid Crown Anemones behind. The last snow played sad havoc with the foliage and opening bloom buds of the Anemones and a few of the Narcissi, though they had escaped unscathed through the winter's frost. *N. Trumpet Major* has only opened its first bloom to-day, being preceded ten days by *N. obvallaris* (the Tenby Daffodil). Mr. W. B. Hartland of Cork last year had this last in bloom the 24th February, so that unquestionably for everything as well as for Daffodils this will be one of the latest seasons on record. Those who have the Tenby Daffodil should save the seed—it seeds freely—or cross (hybridise) it with, say, *N. cernuus*, which blooms at the same time, as I have done. As to this last, *N. cernuus moschatus*, as it came labelled to me from Holland, I think there must be some mistake. It is pure white but not Musk-scented, and therefore cannot deserve that adjective. I sent a flower last year to Mr. Burbidge, Trinity College Gardens, who considered it "not exactly like anything he had," and he has probably one of the most complete collections in the world. I find advertisements for Narcissus flowers or bulbs in several of the local Irish newspapers, especially for the single forms. I think this



commendable, as long-lost or new varieties may be thus secured, as Mr. Hartland, above named, secured Rip Van Winkle, which Mr. Peter Barr at first considered might be the double form of the Lent Lily. Rather curious bulbs of *N. incomparabilis* Leedsii, and I may add *N. bicolor* Horsefieldii, ripened; taken up, and potted here, bloomed splendidly a fortnight before those imported. This is worth remembering.—W. J. MURPHY, *Clonmel*.



#### KITCHEN GARDEN.

SPRING has come at last. Rain has fallen freely of late; the temperature, night and day, has risen rapidly, and a continuance of such weather will soon enable us to bring up all arrears. Since the snow disappeared frost ceased, and the atmosphere has become humid and mild; it is simply astonishing how much young Cabbage, Onions, Spinach, and other vegetables have advanced. They have quite regained their healthy appearance, and no one could tell that they were the same plants as were so much shrivelled in the frost some weeks ago. Where operations are much behind, as they will be in many instances, there may be a tendency to put crops in hurriedly and imperfectly, but the practice should be avoided, as it has a decided bearing on the quality of the crops throughout the year. The greatest economy results from doing everything well.

MUSTARD AND CRESS.—Where the winter has dealt hardly with autumn-sown Lettuce and other salad plants there may be a prospect of spring salading being very scarce, but a good supply of Mustard and Cress will give great satisfaction and compensate for other deficiencies. Sow the seed on the surface of inside Peach or vinery borders or in shallow boxes; growth will be rapid in any rich soil where the temperature ranges from 55° to 70°.

ONIONS.—Sowing these should be completed as soon as possible. As a rule all sorts are placed into very rich soil; indeed, it is generally considered almost useless to sow Onions in poor soil, but this is a mistake, as all Onions intended to be kept through the winter and into the following summer cannot be too firmly grown, and much sounder bulbs are produced on poor soil than in rich material. The bulbs are small in poor soil, but they mature thoroughly, and these are the qualities to insure their long keeping. Onions in rich soil grow freely and generally form large bulbs, but frequently they are thick in the neck and do not ripen well, and we would strongly advise all who wish to grow medium-sized bulbs of the highest keeping properties to sow and grow on poor soil. No good Onions will ever be grown in a shady position; in fact, they cannot be too much exposed to the sun. Allow 15 inches from row to row, sow thinly, and roll the ground firmly afterwards. Some Onions we sowed about the middle of February were kept at a standstill during the recent severe frost, but they are now showing all along the rows. Where seed was sown in boxes under glass harden off the young plants as soon as they are 4 inches or 5 inches high, that they may be ready for planting out in a few weeks.

POTATOES.—It will now be safe to plant these in all parts of the country, and garden and all early crops should be placed in as soon as possible. Use plenty of ashes and leaf soil where the soil is heavy, and where manure is scarce a sprinkling of guano round each set is good. As soon as the young shoots appear above ground on the early border or elsewhere draw a little soil over them to keep them under cover and away from frost as long as possible.

GLOBE ARTICHOKE.—These are just beginning to grow. Where light material was put round them as protection in the autumn move this away and supply rich manure. Do not fork or disturb the roots, but as the manure is washed down to the roots they will receive the full benefit of it.

BET.—The seed and young plants are somewhat tender, but where the supply of old roots is deficient young ones should be secured as soon as possible, and a few short rows of the Turnip-rooted variety may be sown. This is much earlier than any of the long-rooted sorts, and the bulbs will be ready for use in about two months after sowing.

JERUSALEM ARTICHOKE.—These should be grown in every garden, as they are most simple in culture, productive in results, and useful. They may be grown in almost any soil or in any situation. A peck or two of seed should be brought in now and planted, and where they do exist lift every one of them. Select all the large ones and store for use, but the smaller tubers should be replanted. As they grow tall from 2 feet to 3 feet should be allowed from row to row, and 1 foot from set to set. They should be planted like Potatoes, and from 4 inches to 6 inches below the surface.

PEAS.—Autumn-sown Peas will, in many instances, be a failure this spring; ours have suffered severely, but some of Ringleader, which were sown in the open in the first week of January, are 2 inches high and looking well. Others which were sown in turves under glass since then are 3 inches and 4 inches high, and they are now in a cold frame with the lights off during the day and only on at night; and if we could make sure of the weather we would plant them out, but remembering past experience we will keep them in for another week or so; but all Peas raised under protection should now be hardening, and great care must be

taken that this is not done too quickly or they may be checked and their earliness fail to be an advantage. Sow more seed, earth up, and stake all early crops.

BRUSSELS SPROUTS.—These have withstood the severe winter better than any choice winter green; and as they are such an excellent vegetable from October until April they should be grown by all. Many small garden owners shun them under the impression that they are difficult to grow, but they are no more so than Cabbage, and should just be as common. Two or three years ago we advised the head gamekeeper to try a batch in his garden, and he was so well pleased with the growth they made, and the long succession of excellent vegetables he secured from them at a season when he was often without green vegetables, that they have become a favourite winter crop. The secret of having them good is to sow early and have the plants well up by June or July; then they have the autumn to form the sprouts. The first week in April is a good time to sow. A seed bed a yard square or thereabouts will furnish many plants, and when sown together in a small patch it is a simple matter to transplant them into their bearing quarters when they become large enough to be put out.

PARSNIPS.—Some sow these very early, but we have generally found those sown in April as good as those sown in January or February by the time November came, which is early enough to have Parsnips ready. The Student is our favourite variety. It is not so large as some, but it is first-rate in quality. Moderately rich, not very stiff soil suits Parsnips best, and the rows should be 18 inches apart at least. There is no use, however, in attempting to get fine long roots from shallow soil; and where the soil is not more than 1 foot in depth we would advise the Turnip-rooted variety to be grown. This is really a useful little-known variety.

SEAKALE.—Where plants were taken up to force and were put into pots and boxes they should be hardened off in these, and as soon as the young growths which are being emitted from the crowns are capable of bearing exposure plant them. Those which we are planting now will come in for forcing again the winter after next. Where the crowns are small they are planted without being disturbed, but where they are large and several shoots are growing on each they may be split into pieces, each one with a growth on the top, and plant in this way. The soil can hardly be too rich for them, and they should be put in rows, allowing 15 inches from plant to plant and 3 feet from row to row. Roots which have been forced in the ground, and are too close together, should all be taken up and replanted.

#### FRUIT FORCING.

MELONS.—Stopping, thinning, and tying the shoots will require frequent attention, which must be timely, as if neglected for only a few days the shoots will become overcrowded. Plants swelling their fruit will require water at the roots, and if bottom heat be afforded by hot-water pipes a thorough soaking should be given. If the roots of the plants are in shallow or narrow borders, and drainage ample, tepid liquid manure in a weak state should be applied whenever the application of water to the roots is necessary, which will, in a great measure, compensate for the limited root-action. Ventilate in accordance with the state of the weather, commencing at 75°, or at 70° on fine mornings, and increase it with the rising temperature, maintaining the temperature at 65° to 70° at night, 70° to 75° by day from fire heat, and 80° to 90° in the daytime from sun heat, closing at 85° to 90°, and so as to run up to 95°, with plenty of atmospheric moisture, a high temperature with plenty of moisture being essential in houses or pits where Melons are swelling. Support must be given the fruit in good time, a piece of half-inch thick deal board, 6 or 7 inches square, and suspended in a sloping position so as to prevent the water lodging, securing it by four pieces of wire from the trellis. Succession plants will need constant attention in training and regulating the growth. Train with a clear stem to the trellis, rubbing off the side shoots so soon as discernible, and do not stop the leading shoot until it has grown two-thirds across the trellis. Every alternate lateral on opposite sides of the leading shoot should be removed, and this will prevent the crowding that is too often allowed. The laterals will show fruit at the second or third joint, and should be stopped one joint beyond. A somewhat dry atmosphere should be maintained where the plants are in flower, and until they have set their fruit, impregnating the flowers every day as they expand, until a sufficient number are obtained on each plant of the same stage of growth. In pits and frames where the plants are trained over the surface of the beds young plants will need stopping at the second or third leaf, and the shoots resulting being reduced to four, train two to the front, and a similar number to the back of the frame, stopping them when a foot from the sides. It will be necessary to thin or rub off the laterals to some extent so as to prevent overcrowding, and fertilise the flowers, stopping at the same time one joint beyond the fruit. The linings of dung frames will require to be looked to weekly, or at such intervals as circumstances occasion, and protection over the lights will be necessary at night as a means of retaining the heat by preventing radiation from the glass. Sow and plant in accordance with the requirements of the establishment.

CUCUMBERS.—If fine fruits are desired crop lightly and place the fruit in glasses to grow clean and straight. Plants in vigorous growth, and the soil being rapidly filled with hungry roots, will be benefited by copious supplies of weak tepid liquid manure. Maintain a moist and genial atmosphere by damping frequently and syringing at closing time. Ventilate a little early to dissipate any moisture that has accumulated through the night, and keep the temperature through the day at 80° to 85° with sun, closing sufficiently early to raise it to 90° or 95°. Attend to stopping, thinning and arranging the shoots so as to keep up a



succession of young bearing wood. Where the demand is not very great a good supply of fruit can be obtained with several two or three-light frames by planting the Cucumbers in succession and cropping lightly. When the second frame plants come into bearing thin most of the old shoots of the plants in the early frame, and induce the plants to make young wood, which will, in its turn, make a succession to the second, and so proceed with each frame in successional order.

**STRAWBERRIES IN POTS.**—The season for fine forced Strawberries will soon be at its height and the labour entailed at its maximum. Dry cast winds are very prevalent in spring time, and great attention must be given the watering. The plants should be examined at least three times a day in bright weather, and whenever a plant needs water give a thorough supply. The shelves at this time of year should be at a greater distance from the glass than is advisable earlier in the season, so as to allow a free circulation of air between the leaves of the plants and the glass, the flowers not being exposed to violent atmospheric changes on the admission of air after a period of dull weather. Plants that are to give very fine fruit should not only be those showing the largest flowers, but those must be thinned to about a dozen or so on each plant before they expand. Bring them forward in a gentle heat in the first stages of swelling, affording an abundance of atmospheric moisture so long as the fruit remains green; but when it becomes whitish green increase the temperature gradually to 80°, 85°, and 90° on sunny days, keeping through the night at 65° to 70°, with 5° more on dull days or from artificial heat, continuing this until the fruit becomes red all over, when the temperature should be lowered to a minimum of 60°, in which they will increase considerably in size even after they are apparently ripe, and to secure high flavour a free circulation of warm rather dry air must be maintained, watering at the roots being dispensed with as much as possible for two or three days before the fruit is gathered.

#### PLANT HOUSES.

**Zonal Pelargoniums.**—To have these in good condition for winter, cuttings may now be rooted. Healthy cuttings should be inserted singly in small pots, and if kept moderately moist will root quickly on a shelf in a temperature of 60°. As soon as the plants are rooted remove them to a temperature of 5° or 10° lower to encourage a dwarf sturdy growth. When the small pots are full of roots the plants may be transferred into 3-inch, and finally into 6-inch pots. By the time they are placed in the last size they should be growing under cool conditions. Pinch the shoots from time to time to induce branching. The soil must be pressed firmly into the pots, the most suitable soil being fibry loam, one-seventh of manure, and a little sand. Double varieties required for yielding trusses for cutting during the summer months may now be placed in 7-inch pots. The earliest plants for this purpose are bushy specimens in 5-inch pots, which are now full of roots, and have again started freely into growth after having their shoots pinched. These, after potting, will be allowed to flower. Later plants in the same size pots should now be pinched, and when they have commenced growth they will be ready for potting. If there is any deficiency in the stock of these plants insert strong cuttings at once, placing three or four into 60-size pots, and then grown on together without stopping the shoots.

**French and Fancy Varieties.**—The earliest of these will be coming forward rapidly, and if placed in a temperature of 50° to 55°, will commence flowering before the end of next month. Care must be taken to ventilate daily when the weather is favourable, or the flower stems will be drawn up weakly. If the pots are full of roots weak stimulants may be given every time the plants need water, or a little artificial manure to the surface once a fortnight. Grow the second batch close to the glass, in a temperature of 45°. These must be watered carefully, and the shoots allowed to extend after this date. Large plants must have their shoots tied out before they become crowded. The third plants may be placed in the pots in which they are intended to flower, and when they have commenced rooting in the new soil pinch the shoots and tie the strongest out towards the rim of the pots. Cuttings may now be rooted for late flowering. The cuttings on leggy straggling plants may be utilised for this purpose. They may be rooted under the same conditions as Zonals. Pinch them once, and then place them in 4-inch pots and allow them to flower. If green fly appears fumigate at once lightly with tobacco smoke.

**Nicotiana affinis.**—Young plants from seed sown some time ago will now be ready for placing in 3-inch pots. They will grow well in any fertile soil, and should be grown on in a temperature of about 50° if wanted in flower as early as possible; if not, grow them on under cool conditions. When the 3-inch pots are full of roots place the plants into 6-inch pots, a very suitable size for them. The blooms of this plant are highly fragrant and most effective when arranged to rise above other dwarf flowering plants.

**Tropaeolums.**—Double and single climbing varieties should now be propagated and grown for furnishing the roof of greenhouses, conservatories, and other structures. When planted out in good soil the plants grow rapidly, covering a large space, and are most effective when bearing their gorgeous flowers. They must be grown on under cool treatment, or their shoots become weakly and the plants fail. These plants do well in good loam, to which is added one third of leaf mould and manure with a little sand.

**Coleuscs.**—Propagate these in quantity, and grow them on for conservatory decoration. A number of these plants will be very useful after spring huls and Azaleas have flowered. For these forms of decoration bright-foliated varieties should be selected, and those that naturally keep their colour even when the structure is shaded to suit flowering plants associated with them.

**Achimenes.**—Cuttings will now be plentiful from the tubers started some time ago, and the first batch should be inserted without delay. Very useful plants for conservatory decoration can be grown in 5-inch pots. These should be moderately drained and filled with a compost of loam, one-third leaf mould, and one-seventh of decayed manure and sand, with a liberal dash of the latter on the surface. Insert cuttings in these about 1 inch apart, then well water them and place them in the propagating frame, where they will quickly form roots. They will root freely in any structure where a temperature of 60° to 65° can be maintained in a shady position, but they root more quickly in the frame. The plants from which the cuttings are taken will soon break again into growth and produce others. Cuttings may be rooted in pans filled with sand for making up baskets, which are very effective. After the cuttings are rooted do not grow them too warm or they will become tall, but if grown in an intermediate temperature will flower from the base.

**Amaryllises.**—Seedlings or small plants that are not wanted for flowering, or any that it is not necessary to retard for flowering late in the season, may now be started into growth. These should be taken out of their pots, the old soil shaken from the roots, and repotted in fresh fibry loam, one-third leaf mould, a little decayed manure, and sand. These plants do not require very large pots, and in potting the hulhs should be well above the soil. The soil must be pressed firmly into the pots. If practicable plunge the pots in gentle bottom heat derived from leaves or other fermenting material. A pit is a good place for them, with a hot-water pipe running round, so that a steady temperature of 50° can be maintained, which will insure a sturdy growth of foliage if they are arranged moderately close to the glass. Water carefully at first, but syringe freely twice daily when the weather is favourable.

**Tuberous Begonias.**—These may now be started, and very few plants are so useful for the conservatory during the summer. The old soil may be entirely removed from the tubers, which should be placed in boxes amongst leaf mould until they start into growth. If the boxes containing them can be stood upon a hotbed where a temperature of about 60° is maintained they will soon commence growing and rooting. They root freely in leaf soil, and can be lifted out with a ball of fibry roots, when it is necessary to place them singly in pots of various sizes according to the size of the tubers. After potting, grow the plants in an intermediate temperature where air can be given liberally when the weather is favourable. These Begonias grow freely in any light rich soil; in fact, we give them the same compost as Achimenes.

**Pancratiums.**—Pot these before they start into growth. The old soil should be shaken from their roots, for it becomes sour in the space of a season, and repot the plants in fresh. Drain the pots liberally, and do not employ too large a size. The soil (fibry loam, sand, and manure) should be rendered firm and the bulbs left well above the surface, so that they will have a chance to swell. After potting shade from bright sunshine, water carefully, but syringe the foliage liberally, and they will quickly recover and commence rooting freely. *Hymenocallis macrostaphana* is a beautiful plant and worth a place in every stove. It requires the same treatment as *Pancratium fragrans*.

**Urecolina aurea.**—A few good pans or pots of this are worth a place in any garden, for the plant is very effective early in the year; in fact, with a good stock of plants their flowering season can be extended for some time by starting some at intervals of a few weeks. We have found it a good plan to shake them out annually after they have flowered and repot them in loam, leaf mould, and sand. The object after flowering is to produce a good leaf growth. They will do well in any moderately warm structure where they can be shaded from the sun.

## THE BEE-KEEPER.

#### USEFUL HINTS.

THE feathered songsters, together with the bees, have again welcomed the return of spring. The cheerful song of the one with the joyful hum of the other will be pleasing to all, while the unfolding flowers will be searched and rifled of their pollen and nectar by the industrious bees.

#### EXAMINATION.

Immediately the bees have aired themselves make a thorough inspection of all parts of the hive for damp. If any exists trace its source. As I have stated often, the exterior of hives should be free from any obstruction to water that is likely to allow the wind to turn it inwardly, or the absence of a proper drip leads to the same evil, as do also horizontal joints, such as dovetailing or double joints, which draw water by capillary attraction. If any of these evils exist cover dovetailed or badly jointed corners with thin corner-pieces, which can be cut cheaply in one piece from a block of wood. Bed these in good white or red lead paint, and nail closely.



## ROOFS.

Wherever these have been made with plinths better to discard at once and make new ones of a good depth to go outside the hive, working telescopically with thin wood, nail on the top, and cover with zinc. The zinc and workmanship for covering a hive will not exceed 8d. The zinc must come over the sides a little, which forms a drip, and when fastened properly at the corners to allow for expansion or contraction never becomes unsightly. I have had these roofs in use for thirty years and are still good. They are light and cheap, and if thorough ventilation has been secured efficient, which no wooden roof is, unless it has been protected by waterproof material. None of this is so cheap or efficient as zinc, which does away with frequent painting, which is expensive.

## MAKESHIFT COVERS.

Every bee-keeper should have a supply of these constantly on hand to meet emergencies. Many a swarm I have seen destroyed for the want of a waterproof covering on the suddenness of a thunder shower coming on while the bees were beginning to cluster, which would have been saved by the timely appliance of a sheet of iron or zinc. These, too, are useful for covering extra hives in summer, and are indispensable in many cases when at the moors. The following are what I have had in use during my bee-keeping career:—Felt, which can be bought for less than 6d. per yard when well tarred, and as much powdery lime pressed into it as it will absorb, makes a lasting cover. Lime seems to petrify, and the felt seems to become everlasting after being so treated. Covering felt with sand, as so often recommended, is of little use. After using felt for ten years I have had it buried for as long a term, and when taken up have used it again. Painted or tarred paper are handy makeshift coverings, but do not act so well if fastened to wood, as its shrinkage is liable to rend the paper. Good canvas thoroughly painted, laid on a bed of paint, and occasionally painted afterwards has lasted for seventy years, and some I saw done in this way forty years ago is still waterproof. Zinc galvanised, plain and corrugated iron, are all cheap and useful, and if the latter could be had in sheets circled of the right size for hive roofs there is nothing better. The corrugations admit a free circulation of air, keeping the upper part of the hive cool in summer and dry in winter—the essential points towards profitable bee-keeping. Canvas of any sort tarred or painted is a good temporary covering, but is soon cut, and is liable to create damp. Other coverings I have seen, but the foregoing are the cheapest, and what I have found serviceable in the apiary as well as the garden.

## DYSENTERY.

Should any of the bees show signs of abdominal distension, brought on by cold and damp through defective hives or disturbance, take immediate steps to put matters right whenever a fitting opportunity occurs, which is when the day is fine and the bees from healthy hives are flying. In all cases where the ordinary and moveable floorboards are in use, these removed, and clean dry and heated ones substituted, will greatly strengthen the bees and enable them to fly and return safely to their hives. If this occurs with bees in hives with fixed and damp combs, ventilate from below and above by placing an empty box on the top, carry the hive of bees into an apartment having a brisk fire, and keep them there until the bees outside are again flying, then place them on their stand. By this process the hives will be made drier and more genial for the bees. With frame hives it will only be necessary to transfer bees and combs into a dry and empty hive, unless the combs are the worse from damp. In such a case it will be advisable to supply the bees with dry ones, either from combs kept for the purpose, or of those from other hives that can spare them. It is to be hoped that there will be few cases requiring such treatment: there should be few, if previous instructions have been attended to. Occasionally, however, from unknown causes, a chance case may occur in which the above treatment will greatly mitigate the evil. In

fact with healthy bees it is beneficial to assist them in their first flight when it can be done with a little artificial heat. Those hives having a dropping bottom with ventilating floor, a thin firebrick slightly heated and placed on bottom, then closed to zinc, has proved beneficial.—A LANARKSHIRE BEE-KEEPER.

## FEEDING BEES IN THE SPRING.

## UNSEALING CELLS—INCREASING SPACE.

WILL some practical bee-keeper inform me if it is necessary to feed bees in the spring if there is plenty of uncapped store in the hive, and should anything be done to promote an increase of bees? Shall I be doing right in unsealing the cells to allow of the bees consuming the honey, thus providing additional room for the queen to deposit eggs and raise brood? A little advice on the above will oblige.—A NOVICE IN BEE-KEEPING.

[If bees have a sufficient store of honey in the hive now, say not less than 12 lbs., or if the hive is of sufficient size, there is no advantage gained by feeding; nay, it is detrimental when it can be avoided. Uncapping cells is also a great mistake and wasteful of honey, as well as wearing out the bees, causing loss amongst them by inducing them to fly out.

If your hive is not large enough to contain 30 lbs. of honey independent of breeding space it is too small, and you should take immediate steps to increase its size. Horizontal sections or divisions, as in the Stewarton, is the proper way to accomplish that. Some people have an idea that bees require open ventilation above. This is a great mistake, and simply destroys them wherever it is resorted to. It is also damaging to hives when the crown of the hive is rendered non-porous. As bees carry on breeding at least nine months in the year the covering should always be uniform, ample to retain the heat, but so that vitiated air may pass through the covering without causing a draught, but not overmuch, or the moisture may condense and fall back on the bees and honey, chilling the former and rendering the unsealed honey unwholesome and likely to lead to disease.

Where the bees have dwindled to a mere handful these should be at once confined into space consistent with their powers of breeding; but wherever hives have been managed in a thoughtful manner they should require little or no attention until swarming time beyond cleaning floors, giving peameal and water where these necessities are scarce in the apiary during spring. I think the foregoing covers the questions.

The following gives conclusive evidence that long experience is the best guide. On the 7th of February there was a slight relaxation of the severe winter weather, when a few of our bees flew out without much loss amongst the snow, as I had it cleared away from the front of the hives previously. Young bees aired themselves in great numbers. After that the weather turned more severe, the thermometer sinking to 7° in March, and snow fell every day, unless three, up till the 20th March, or in other words it snowed for ten weeks. On that date the snow was thick with much ice, which the rising temperature of that day began to dissolve. The bees now began to fly, but it was not till the following day that they were enabled to have a thorough airing. From the large percentage of youthful bees showing at all the hives, together with the preserved old bees, as well as young drones at some of them, they are in a fit state to gather surplus honey at the earliest and first opportunity. This means that feeding, uncapping cells, spreading brood, &c., are unnecessary to promote breeding. That depends upon autumn management, by having a young mother, plenty of bees, a roomy hive of proper form, free from damp, and containing plenty of stores, means for keeping up a free circulation of air throughout the hive without creating a draught, and a sufficient quantity of dried grass on the top to retain the heat, but not so much as to cause the perspiration to condense and fall upon the bees. I have several hives in my apiary that have not shown a bee dead or alive from the end of October till the 21st day of March, yet these are healthy, have had no loss, and are far advanced with brood. They are Carniolian bees, and are in deep hives and in such an advanced state that it is impossible to interfere with them without injuring them. The only thing required is not to allow such hives to have less than 12 lbs. of honey in store until the honey season sets in. I have, perhaps, gone beyond the limits allowed for answering queries, but I considered that a brief description of the state of my bees would be interesting to more than "A Novice," and encourage and induce them to adopt proper forms of hives with consistent management, without which success cannot be obtained.—LANARKSHIRE BEE-KEEPER.]



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or



members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**TO CORRESPONDENTS.**—We desire to assure those of our correspondents whose letters and communications are not promptly inserted that they are not the less appreciated on that account. Our pages are practically filled several days prior to publication, and letters arriving on Wednesday morning, except by special arrangement, are invariably too late for insertion. The delay in the publication of some of these is not of material importance, but reports of meetings and shows held a week previously lose much or all of their value if not received in time to appear in the current issue.

**Liverpool Horticultural Association (J. W.).**—Mr. E. Bridge, 3, Cedar Terrace, Huyton, Liverpool, is the Secretary of the above Association. Butterflies have been seen in warm localities since the favourable change in the weather.

**Marsh Mallow (T. N.).**—You ask if this plant belongs to the Cranesbill or to the Hollyhock. Generically it does not belong to either, but is classed in the same natural order as the Hollyhock—Malvaceæ.

**Camellias (J. C.).**—The culture of Camellias has been frequently and fully described in our columns, and if you preserve the back numbers you will find an excellent article on page 153, February 19th, 1885. There is no pamphlet such as you appear to require. If you can make the actual condition of your plants clear to us, and state your means of growing them, we will readily advise you on their management.

**A New Insecticide (W. R. B.).**—The formula to which you refer is not Professor Church's, and our report does not state he gives it to the world. He brought the preparation to the notice of the Scientific Committee of the Royal Horticultural Society, and explained he had no interest in it except a scientific one. It is a proprietary invention, and will presumably be manufactured for sale, and, therefore, no doubt advertised. We are not in possession of the formula.

**Protecting Fruit Blossom (E. B.).**—By all means affix the blinds, especially as they can be "so arranged as to be drawn up and let down as required." That is the best plan undoubtedly. It does not at all follow that because the weather is now so mild that it will remain so, and sharp frosts or cutting winds may yet occur to injure the blossom on your Peach trees. It is wise to expect that adverse weather changes will be sudden, and to be provided accordingly. Blossom is often injured by thick permanent coverings in mild weather, but at the same time it is to be remembered that a crop of fruit may be destroyed in one night. Where moveable blinds are provided and judiciously used it is not often the blossom so protected fails to set. The young fruit also needs protection from frost. We have known Peaches and Apricots destroyed when as large as Nutmegs.

**Market Garden Ground (W. J. R.).**—Good market garden land at £4 per acre well cropped and managed ought to afford a good return to a person with sufficient capital, which ought not to be less than £20 per acre, and with a good practical knowledge of gardening; but much depends upon the condition of the land. If poor or exhausted by the outgoing tenant it will need a considerably larger amount of capital for manure, and the value of the crops would be lessened for a time through their not being heavy nor of such quality as to bring the best prices in the markets. Then if the land be foul or weedy state it will add to the capital necessary to clean it and correspondingly take from the profits; it will make a considerable difference also if the land needs draining, and further in the method of cultivation adopted, for if the land has been under plough and you put it under spade cultivation the capital needed will be considerably more than were you to keep it to the plough. Then you make no mention of buildings, which must or ought to exist on a ten-acre plot, and means of working, conveyance of goods to and off the land, with nearness of market will have to be taken into account, these being matters for serious consideration. With the land fairly clean and in good heart we think it would pay good interest on the capital invested, providing average management is exercised in cultivation. We think land at £4 per acre is too good for poultry and rabbits; or if not, it is not worth £1 per acre for market gardening.

**Tacsonia Dying (W. L., Co. Down).**—Your plant that "flowered profusely yet grew very little" was in a very enfeebled state, the flowering being as it were a last flicker of life—a sort of gasping yet futile effort of the plant to perpetuate its species by the production of seed before it died. Its cankered stem, a portion of which you have sent, shows that very little sap could be supplied by the roots, the channels through which it should pass being either obstructed or decayed. It is certain it would not have lived long in the absence of frost, but this undoubtedly accelerated its death. You were therefore not far wrong in your verdict. We suspect the stem has sustained injury at some time, which predisposed it to decay, and we do not think the origin of the evil was in the soil.

**Dissolving Bones (W. A.).**—There is a slow and a quick method of reducing bones to powder:—1, Take a large watertight hogshead, and cover the bottom with about 6 inches deep of dry soil; on this put a layer of bones of the same depth, and cover them entirely with wood ashes; on these another layer of bones, then ashes, and so on till the hogshead is full. Leave it exposed to the rains all summer and winter till spring. Then on removing the contents of the hogshead the bones will crumble to powder under a slight pressure and form one of the most valuable manures ready for immediate use. 2, Place the bones on an earthen floor surrounded by

a rim of ashes. Pour on as much water as the bones will absorb, and then pour on sulphuric acid, about 2 lbs. sufficing for 5 lbs. of bones. It will boil somewhat violently for a while. When this has subsided it will get tolerably solid. The ashes and all may then be shovelled up together, and will be fit for use in a few days.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (A. Y.).—1, *Celsia Arcturus*; 2, *Alonsoa Warscewiczii*.

**Barleysugar (R. C.).**—The barleysugar is a fairly serviceable sample, and will be readily made use of by the bees. It has been a little over-boiled. When making the next keep testing to see whether it is done by pouring a little on to a cold surface. If on cooling it becomes crisp and brittle, and very slightly sticky, it is ready for removal; if soft and sticky it requires more boiling. Syrup should now be used in preference to candy in all cases where food is required.

# COVENT GARDEN MARKET.—MARCH 31st.

MARKET with little alteration. Grapes lower. Trade better. FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	1 0 to 3 6		Oranges .. .. .	100 4 0 to 6 0	
" Canadian .. .	12 0 24 0		Peaches .. .. .	per doz. 0 0 0 0	
" Nova Scotia ..	10 0 12 6		Pears, kitchen ..	dozen 1 0 1 6	
Cobs, Kent .. .	per 100 lbs. 27 6 30 0		" dessert .. .	dozen 0 0 0 0	
Figs .. .. .	dozen 0 0 0 0		Pine Apples English ..	lb. 1 0 1 6	
Grapes .. .. .	lb. 2 6 7 0		Plums .. .. .	1/2 sieve 0 0 0 0	
Lemons .. .. .	case 8 0 10 0		St. Michael Pines ..	each 2 0 6 0	
Melon .. .. .	each 0 0 0 0		Strawberries .. .	per oz. 0 6 1 0	

# VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. .	dozen 1 0 to 0 0		Lettuce .. .. .	dozen 1 0 to 1 6	
Asparagus .. .	bundle 2 0 8 0		Mushrooms .. .	punnet 0 6 1 0	
Beans, Kidney ..	lb. 2 0 3 0		Mustard and Cress ..	punnet 0 2 0 0	
Beet, Red .. ..	dozen 1 0 2 0		Onions .. .. .	bunch 0 3 0 0	
Broccoli .. ..	bundle 0 9 1 0		Parsley .. .. .	dozen bunches 2 0 3 0	
Brussels Sprouts ..	1/2 sieve 6 0 8 0		Parsnips .. .. .	dozen 1 0 2 0	
Cabbage .. .. .	dozen 3 0 4 0		Potatoes .. .. .	cwt. 4 0 5 0	
Capsicums .. ..	100 1 6 2 0		" Kidney .. .	cwt. 4 0 5 4	
Carrots .. .. .	bunch 0 3 0 4		Rhubarb .. .. .	bundle 0 2 0 0	
Cauliflowers .. .	dozen 2 0 3 0		Salsify .. .. .	bundle 1 0 0 0	
Celery .. .. .	bundle 1 6 2 0		Scorzoner .. .	bundle 1 6 0 0	
Coleworts .. .	doz. bunches 2 0 4 0		Seakale .. .. .	per basket 2 0 3 0	
Cucumbers .. .	each 0 3 0 8		Shallots .. .. .	lb. 0 3 0 0	
Endive .. .. .	dozen 1 0 2 0		Spinach .. .. .	bushel 6 0 8 6	
Herbs .. .. .	bunch 0 2 0 0		Tomatoes .. ..	lb. 1 0 3 0	
Leeks .. .. .	bunch 0 3 0 4		Turnips .. .. .	bunch 0 4 0 6	

# PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen 9 0 to 18 0		Ficus elastica .. .	each 1 6 to 7 0	
Arbor vitae (golden)	dozen 0 0 0 0		Ferns, in variety ..	dozen 4 0 18 0	
" (common) .. .	dozen 6 0 12 0		Foliage Plants, var. ..	each 2 0 10 0	
Arum Lilies .. .	dozen 9 0 18 0		Genistas .. .. .	dozen 10 0 12 0	
Azaleas .. .. .	dozen 24 0 42 0		Hyacinths .. .. .	dozen 5 0 9 0	
Begonias .. .. .	dozen 0 0 0 0		Lilies of the Valley, in		
Bouvardia .. ..	dozen 0 0 0 0		clumps or pots, per doz.	15 0 30 0	
Cineraria .. ..	dozen 10 0 12 0		Marguerite Daisy ..	dozen 8 0 12 0	
Cyclamen .. ..	dozen 12 0 24 0		Myrtles .. .. .	dozen 6 0 12 0	
Cyperus .. .. .	dozen 4 0 12 0		Palms, in var. .. .	each 2 6 21 0	
Dracena terminalis,	dozen 30 0 60 0		Pelargoniums, scarlet, doz.	6 0 9 0	
" viridis .. .	dozen 12 0 24 0		Primulas, single, doz.	4 0 6 0	
Erica, various ..	dozen 12 0 24 0		Solanum .. .. .	dozen 8 0 12 0	
Euonymus, in var.	dozen 6 0 18 0		Spiraea .. .. .	dozen 12 0 18 0	
Evergreens, in var.	dozen 6 0 24 0		Tulips .. .. .	12 pots 6 0 9 0	

# CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. .	12 bunches 0 0 to 0 0		Lilium longiflorum, 12 blms.	0 0 to 0 0	
Acacia (Mimosa), Fr., per			Lily of the Valley, 12 sprays	0 9 1 6	
bunch .. .. .	1 0 1 6		Marguerites .. .	12 bunches 6 0 8 0	
Arum Lilies .. .	12 blooms 4 0 6 0		Mignonette .. .	12 bunches 3 0 6 0	
Azalea .. .. .	12 sprays 0 6 1 0		Pelargoniums, per 12 trusses	1 0 1 6	
Bouvardias .. .	per bunch 0 0 0 0		" scarlet, 12 trusses	0 9 1 0	
Camellias .. .	12 blooms 2 0 5 0		Poinsettia .. .	12 blooms 0 0 0 0	
Carnations .. .	12 blooms 1 0 3 0		Roses (indoor), per dozen	3 0 9 0	
Chrysanthemums 12 blooms	0 0 0 0		" Tea .. .. .	dozen 2 0 4 6	
" 12 bunches 0 0 0 0			" red, French ..	dozen 2 0 4 0	
Cyclamen .. .	doz. blooms 0 4 0 9		Spiraea .. .. .	12 sprays 1 0 0 0	
Epiphyllum .. .	doz. blooms 0 0 0 0		Tropæolum .. .	12 bunches 2 0 3 0	
Eucharis .. ..	per dozen 4 0 8 0		Tuberose .. .	12 blooms 3 0 0 0	
Gardenias .. .	12 blooms 6 0 18 0		Tulips .. .. .	dozen blooms 0 9 1 0	
Hellebore .. .	doz. blooms 0 0 0 0		Violets .. .. .	12 bunches 1 0 1 6	
Hyacinths, Roman, 12 sprays	1 0 1 6		" Czar, Fr., .. .	bunch 1 6 2 0	
Lapageria, white, 12 blooms	0 0 0 0		" Parme, French, per		
Lapageria, red .. 12 blooms	1 0 2 0		bunch .. .. .	4 0 6 0	



# ROOT CROPS.

It has been said of Mangolds that even when at the best, as they are at this season of the year, they will not fatten



cattle or sheep. We may qualify this assertion, and say that Mangolds alone will not fatten animals either fast enough or sufficiently well, but they are an excellent, and, in the opinion of many farmers, an indispensable addition to the food of all animals of the farm now. Valuable as Mangolds undoubtedly are, it is a mistake to regard them as quite indispensable, and when the small store of this season is exhausted, to sell animals at a sacrifice as we were asked to do by one of our bailiffs. With a liberal diet of crushed corn, cake, and chaff, and pure fresh water, we can dispense with Mangolds, but we never would do so except from necessity. Happy is he who has more than he requires, for the price has reached the abnormal height of 25s. per ton. What say they to this price who assert that 15s. per ton is the actual value of Mangolds as an article of food? Well will it be if the short supply of Mangold teaches us never to depend too much upon any particular crop, but rather so to apportion the land at our disposal that there may be a fair proportion of all useful crops.

Kohl Rabi, if grown on ridges prepared precisely in the same manner as for Mangolds, should find a place on every farm, for its nutritive value is high, its culture easy, it bears transplanting well, and withstands the effects of drought in a remarkable degree. With it too, early sowing is all-important, as enabling it to become well rooted and to grow freely before the extreme heat of summer begins. The risk and labour of transplanting have led to drilling, and the seed can now be had sufficiently cheap to enable us so to use it. No doubt Kohl Rabi is a greedy plant, requiring a rich store of fertility in the soil for its full development; but it is certainly not more so than the Mangold, and it should take rank with it as an article of diet, and precedence of the Swede both for nutritive value and certainty of a crop. It is this certainty which adds so materially to its value; once get the plants established in soil stored with the requisite elements of fertility, and they answer so well that we have known instances of its adoption as a substitute for the Mangold, which, owing to a failure or two, was considered unsuitable for the soil. Well would it be if farmers were not so generally predisposed to take things for granted, but would rather persist in proving for themselves why certain crops answer or otherwise. Knowledge so gained is invaluable, and while avoiding costly speculative experiments, we are certainly justified in striving for improvements which shall render results more certain and more profitable.

It is our agreeable privilege to own that we were successful in our Swede culture last year, and we have found the roots most serviceable. The earlier-sown Swedes were cleared off the land and put in clamps for the hoggets, the later sowings were left out upon the land, and we are now folding ewes with forward lambs upon them. The lambs run forward and give ample proof of lusty appetites by eating many of the Swedes level with the surface before the ewes are let in to clear up the remainder of the roots which are pecked up for them. Why is it that so many farmers in the southern and midland counties wait till June before sowing the Swedes? We saw a field of Swedes last year which was sown at the same time as the Mangolds, and the roots were very fine, much finer than any other Swede which came under our notice. All things considered we prefer May for our first sowings, and then follow with a June sowing for folding as we are doing now. The land then comes nicely to hand for successional crops of spring Tares, on which the sheep are again folded, and the land is subsequently in admirable condition for a Wheat crop, being ploughed early, so as to be ready for the first sowing by the end of September. Not unfrequently, however, advantage is taken of its high state of fertility for a crop of winter Beans, which we invariably sow early in autumn.

White Turnips, though low in nutritive value, are very useful, and we gladly welcome two or three successional crops for the sheep. We generally have a field or two at this season of the year, with nice green tops for the lambs, but, alas!

our wintry March weather has destroyed the tops which were green enough in February. May, June, and the two following months should each afford us a crop if land can be had and the weather is favourable. We failed to obtain any early White Turnips last year, and we know a farm where a field was sown three times in vain, and there were no White Turnips on that farm. We never fold sheep solely upon a diet of Turnips, but always give dry food in troughs, not as a simple matter of course, but according to our invariable practice of promoting quick growth and early maturity in the sheep.

Carrots are grown principally for the dairy cows, our aim being to secure enough for stall feeding during the last three months of the year. We sow early in April upon a fine clean seed bed, the thinning is done early, in order that the hoes may be soon at work to keep under weeds.

#### WORK ON THE HOME FARM.

At last winter is gone! and we have delightful spring weather for sowing the spring corn. All was in readiness for the change, and the work goes on so briskly that by the time this note is published most of the corn will be sown. We have five farms in hand, and our arrangements for spring work required much care and forethought. Due care had to be taken to have the best seed, to procure manure in due proportion according to the condition of the land, not only at each farm but in each field. As we have gone about upon the farms during the past week we had the gratification of finding our plans being carried out so well that we may reasonably hope for success. The seed drills were in full activity; the soil mellow, and fine as a dust heap—aye, even upon so-called heavy land farms required far less labour than usual either in the drilling or harrowing. The artificial manures, procured from various sources, were mixed in one huge heap at each farm, and the sowing of it upon all crops was being done. We were amused by the account of one of our bailiffs of the sensation caused in the village near his farm by his six-horse waggonload of bags of manure. Never had such a sight been seen there before, and the farmers declare it is a mere waste of money. We are not surprised, for have they not good reason to regard such manure with suspicion? Well, we hope to prove to them we are right both for their benefit and our own profit. Attention is now being given to the preliminary measures for root crops. The farm and manure heaps are ready, and the other manures are ordered. We have had some little difficulty in obtaining bone flour in the only condition we use it, which is absolutely as fine as flour; and impalpable powder, which by the minute division of its particles is precisely in the best condition for speedy action as plant food. After an explanation of our requirements, our reasons for them, and our willingness to pay for extra grinding, we had no further difficulty about the matter.

The ewes and lambs now being folded upon Swedes will, we fear, have finished them before the Rye is ready, and we may have to turn them upon meadow grass for a week or two. Our liberal diet of mixed trough food will be continued, as we wish to force on the lambs and to dispose of them early. Every week our conviction grows stronger of the fallacy of keeping store cattle or sheep, except for breeding. Lambs sold in July even at 30s. apiece must be more profitable than hoggets sold at eight or ten months later at 40s., and there can be no question that this is frequently done, but it is hardly possible that those who persist in doing it look very closely into details.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.


Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain
	Barometer at 32 <sup>nd</sup> and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1886.	Inches.	deg.	deg.	W.	deg.	deg.	deg.	deg.	deg.	In.	
March.											
Sunday .....	21	29.982	51.2	50.0		38.2	61.2	49.1	81.4	46.6	—
Monday .....	22	30.130	47.0	46.6	S.W.	39.8	54.6	41.8	63.4	37.7	0.067
Tuesday .....	23	30.164	52.6	51.1	E.	41.2	60.5	47.2	69.7	45.2	0.017
Wednesday ..	24	30.040	45.4	44.9	E.	42.3	62.2	42.5	90.6	38.8	—
Thursday ..	25	29.959	53.6	51.1	S.W.	43.2	58.4	44.9	89.2	42.2	—
Friday .....	26	29.970	51.2	48.4	S.W.	44.0	56.4	47.7	84.7	42.6	0.177
Saturday ....	27	29.845	51.8	50.6	S.	44.5	55.4	49.1	63.2	47.4	0.088
		30.013	50.4	49.0		41.9	53.4	45.0	76.2	42.9	0.349

#### REMARKS.

21st.—Dull till 11, then fine and warm.  
 22nd.—Overcast.  
 23rd.—Dull and showery morning, fine afternoon, but no bright sunshine.  
 24th.—White fog early, fine bright day.  
 25th.—Cloudy morning, fine after.  
 26th.—Alternate cloud and sunshine, rain in evening and night.  
 27th.—Dull and drizzly morning, fair after, with strong wind.  
 The sudden change which occurred on the 18th has proceeded with exceptional rapidity, the temperature this week being 20° higher than that of the week before last. The only approach to so sudden a change which I can trace for some years past was between March and April, 1883—the maximum temperatures rose in the last two weeks of March and the first of April exactly as much as in the two weeks just past—viz., 19.7°. But in 1883 the nights remained cool, only rose 6°, while this year they have risen 0.8°. It must be long since so great a change of mean temperature has occurred, and it is noteworthy that there has been very little change in the barometer, and very little rain.—G. J. SYMONS.





## COMING EVENTS

8	TH	Royal Society at 8 P.M.
9	F	Quekett Club at 8 P.M.
10	S	
11	SUN	5TH SUNDAY IN LENT.
12	M	National Chrysanthemum Society, General Committee at 7.30 P.M.
13	TU	Royal Horticultural Society—Fruit and Floral Committees at 11 A.M.
14	W	Royal Botanic Society's Spring Show. [Promenade Show.]

### INCURVED AND JAPANESE CHRYSANTHEMUMS AT THE NATIONAL CHRYSANTHEMUM SHOW.

**A**T the splendid exhibition held in November last by the National Chrysanthemum Society at the Aquarium, Westminster, I took down, with the assistance of a friend, the names of all the flowers that were staged in competition in those classes devoted to the incurved and Japanese varieties. The number of the former I find to have been 839, while of the more popular Japanese there were 835, thus making a grand total of no less than 1674 blooms in these two sections alone. The incurved were represented by, altogether, 82 different varieties, and the Japanese by 136 varieties. Certain sorts, of course, appeared under several different names, but these cases were by no means numerous, and it being contrary to the regulations of the National Society for any synonymous varieties to be shown together in the same stand the following analyses are in no way affected by them, all synonyms having been tabulated under but one name. Making all reasonable reductions on the score of duplicates there still remains a singularly large number of sorts from which to make a selection which have proved themselves capable of producing exhibition flowers. From the foregoing particulars it will be seen that this was a very extensive and thoroughly representative exhibition, and one well suited for the purposes I had in view.

As to whether the lists which follow give the precise relative positions of the leading Chrysanthemums in the two sections, only the accumulative results of several similar analyses can determine; but that they are there placed, with at any rate approximate accuracy, cannot, I think, admit of much doubt.

It may be of interest to dwell for a moment or two on some of those marked differences between the incurved and Japanese Chrysanthemums which are shown in the two lists. For instance, on glancing down the dates of introduction the more recent character of the latter becomes at once apparent. Indeed, taking the first thirty-six dates in each case, the average date of the incurved comes out as 1868, and that of the Japanese, omitting *Soleil Levant* as 1878, thus showing a mean difference of ten years. Or, looking at this matter in another way, there will be found only four sorts among all the incurved that have been sent out since 1879, whereas, taking the same number of Japanese, there are as many as eighteen which have appeared since that year. These dates further show how much more rapidly improvement is going on in the latter case than in the former. Not that the incurved are by any means as much at a standstill as some would have us suppose, as is indeed proved by the fact that half of the eight leading flowers are respectively only four, five, and seven years old. The number of sports in the incurved section as compared with the Japanese is very remarkable. But admirable as many of these are, they can scarcely be expected to lead to an advance in the direction where it is generally agreed that advance is most needed—

viz., towards the realisation of flowers which require but very little, if any, skill on the part of the dresser to make them presentable on an exhibition table.

The prominent positions which have been so soon obtained by some of the newer varieties in both sections is very surprising, and at the same time very encouraging. For instance, as regards the incurved, *Lord Alcester* (1882) stands No. 3 in the analysis, *Jeanne d'Arc* (1881) No. 6, and *Lord Wolseley* (1882) No. 7. Among the Japanese we find *Madame C. Audiguier*, although only seven years old, taking premier place; while more remarkable still, that extremely dark beauty, *Jeanne Délaux*, which only came out in 1882, follows her very close for first honours; *Mdlle. Lacroix*, only six years old, running into third place in a neck-and-neck race with *Fair Maid of Guernsey*. The best of the 1883 varieties in this division appear to be *Monsieur Astorg* (No. 10), *Monsieur Tarin* (No. 12), *Monsieur Henri Jacotot* (No. 16), *Flamme de Punch* (No. 17), *Margot* (No. 17), *Rosea Superba* (also No. 17), and *Monsieur Moussillac* (No. 20); while several of the 1884 flowers already take fairly good positions—viz., *L'Incomparable* (No. 14), *Madame de Sévin* (No. 16), *Mr. John Laing* (No. 16), and *Fernand Feral* (No. 21).

The premier flower among the incurved, the *Empress of India*, is one of the oldest in cultivation, being nearly thirty years old. Its history is somewhat remarkable, for it appears that it was raised by a Scotch gardener, name unknown, and brought out by Messrs. Downie, Laird, & Laing as *Lady St. Clair*, and under this title received a certificate from the Royal Horticultural Society. Some time afterwards a few well-grown flowers of the same variety were submitted to this Society by another grower as those of *Empress of India*, and to these another certificate was awarded. As showing how entirely the higher designation has ousted its original and true title, I may mention that throughout the whole exhibition at the Aquarium I did not come across one flower named *Lady St. Clair*; neither was there a single *Snowball* or *Mrs. Cunningham*, and only one solitary *White Queen*, these being other names by which this grand variety is said also to be known. In the National Chrysanthemum Society's catalogue—which I am pleased to hear is now undergoing a most searching revision—*Lord Alcester* is only to be found under its synonym of *Princess Imperial*, and yet so much better is it known by its newer name that there were only three *Princess Imperials* staged to thirty-nine *Lord Alcesters*; and in the same way only five *Mr. Howes* to thirty-seven *John Salters*, only one *Madame Madeleine Tezier* to twenty-eight *Jeanne d'Arcs*, and only one *Princess Alexandra* to twenty-eight *Princesses of Wales*. In the Japanese section, however, the name of *F. A. Davis* occurred no less than ten times.

As to the lists of dates and raisers' names which I am now able to give, I think I may claim in their behalf that, notwithstanding some imperfections, they still remain the most complete and accurate of the kind that have yet appeared. For the valuable information they contain I have to express my great indebtedness to Mr. N. Davis, Camberwell; Mr. John Laing, Forest Hill; Mr. Orchard, Kingston-on-Thames; Mr. Owen, Maidenhead; Messrs. Veitch & Sons, Chelsea; and especially to Mr. C. Harman Payne, and Mr. Alfred Salter. Where known, I have given the raiser's name, and where this was not obtainable have substituted the name of the grower by whom each variety was sent out. At the head of the raisers and introducers of those refined and exquisitely formed incurved varieties stands the time-honoured name of Salter, while among the more *négligé*, and now more generally popular Japanese, *Délaux* is credited with either raising or introducing more than one-third of the varieties on my list—surely a remarkable performance for any florist, however gifted.

It is an extremely difficult matter to describe correctly the colours of many Chrysanthemums, for they possess tints not



met with in any other flowers with which I am acquainted. The yellows, it is true, are nearly always bright and clear in tone, but as soon as we come to the different shades of red the matter becomes far less easy. In the trade catalogues we meet with "bright crimsons," "rich crimsons," and "velvety crimsons," to say nothing of "violets," "mauves," "pinks," and even "scarlets," colours which naturally suggest far more vivid tints than they are intended to represent. Even in my own descriptions, which have been obtained from the National Chrysanthemum Society's Catalogue, and introduced here in order to enable those unacquainted with the different varieties to make a selection of the best sorts in different shades of colour, I must request the reader to remember that whenever the words, rose, pink, crimson, purple, mauve, &c., are used, to picture to themselves, in most cases, only dull and very subdued tints of such colours.

Before finally quitting these incurved and Japanese varieties, it may be well to mention that I am informed that both Lady Harding and Mrs. Sharp are in all old Chrysanthemum lists spelt without the final e, usually found appended to their names in most modern catalogues.

If arranged in the same way as in the above lists, the reflexed varieties would dispose themselves in the following order—viz.: 1, Cloth of Gold; 2, Golden Christine; 3, Crimson King; 4, Peach Christine; 5, Phidias; 6, Pink Christine; 7, White Christine; 8, Cullingfordi; and 9, Felicity. Of the new Japanese Anemones, the most frequently shown were—1, Sœur Dorothee Souille; 2, Fabian de Mediana (Fabias de Maderanaz); and 3, Madame Cabrol. I should have liked to have inserted here the best of the Pompons, but these were staged so far back that I was unable to obtain a complete list of the varieties exhibited.—E. M., *Berkhamsted*.

#### INCURVED VARIETIES.

Position in Analysis	Number of times Shown.	Name.	Date of Introduction	Raiser's or Introducer's Name.	Colour.	Remarks.
1	57	Empress of India .....	1859	Laing	Pure white	Sent out originally as Lady St. Clair.
2	49	Golden Empress of India.....	1875	Loader	Pale yellow	Sport from Empress of India.
3	42	John Salter .....	1866	Salter	Cinnamon, orange centre	Synonymous with Mr. Howe.
3	42	Lord Alcester .....	1882	Salter	Pale primrose	Sent out originally as Princess Imperial.
4	38	Queen of England .....	1849	Salter	Blush	
5	34	Mr. Bunn .....	1879	Bunn	Rich golden yellow	Sport from Golden Beverley.
6	29	Jeanne d'Arc .....	1881	Lacroix	Blush, tipped rose-purple	Synonymous with Mad. Madeleine Tezier.
6	29	Princess of Wales .....	1864	Davis	Blush, tinted rose	Synonymous with Princess Alexandra.
7	28	Lord Wolseley.....	1882	Orchard	Bronze-red	Sport from Prince Alfred.
8	27	Prince Alfred .....	1864	Davis	Carmine-purple	
9	24	Alfred Salter .....	1856	Salter	Pink	Sport from Queen of England.
9	24	Nil Desperandum .....	1862	Smith	Dark orange red	
10	23	Refulgens.....	1871	Salter	Purple-maroon	
11	22	Lady Harding .....	1861	Clark	Delicate rose	
12	21	Hero of Stoke Newington.....	1871	Forsyth	Pink	Sport from Princess of Teck.
12	21	Mrs. Heale .....	1866	Heale	White	Sport from Princess of Wales.
12	21	Prince of Wales .....	1865	Davis	Maroon-purple	
13	20	Jardin des Plantes .....	1860	—	Rich golden yellow	
13	20	Mrs. W. Shipman .....	1877	Shipman	Fawn	
14	19	Princess of Teck .....	1868	Pethers	White	Synonymous with Princess Mary.
15	17	Barbara .....	1872	Salter	Bright orange, amber centre	Raised in Guernsey.
16	15	Cherub .....	1862	Smith	Golden amber	
17	13	Golden Queen of England ...	1859	Salter	Canary	Sport from Queen of England.
18	12	George Glenny .....	1870	Waters	Primrose	Sport from Mrs. G. Rundle.
18	12	Golden Eagle .....	1863	Downton	Dark orange	
18	12	White Venus .....	1872	Shrimpton	Pearl white	Sport from Venus.
19	11	Emily Dale .....	1872	Dale	Pale straw	Sport from Golden Queen of England.
19	11	Princess Beatrice .....	1868	Wyness	Rose pink	Raised from seed at Buckingham Palace.
20	9	Empress Eugénie .....	1866	Pethers	Rose lilac	Sent out by Salter.
21	8	Mrs. G. Rundle .....	1867	Rundle	Pure white	Raised from seed by Rundle.
21	8	Venus .....	1865	Salter	Peach	
22	7	Beverley .....	1863	Smith	Cream-white	
22	7	Lady Slade .....	1864	Smith	Lilac-pink	
23	5	Abbé Passaglia .....	1863	Smith	Bronze-amber	
23	5	Golden Beverley.....	1866	Butcher	Pale golden yellow	Sent out by Salter.
23	5	Mabel Ward.....	1881	Martin	Buff	Sport from Eve.
23	5	Mr. Brunlees .....	1865	Smith	Indian red, tipped gold	
23	5	Mrs. Dixon .....	1874	Dixon	Rich golden yellow	Sent out originally as Golden Geo. Glenny.
24	4	Baron Beust .....	1868	Pethers	Chestnut-red	Sent out by Salter.
24	4	Bronze Jardin des Plantes ...	1868	Garaway	Bronze	Sport from Jardin des Plantes.
24	4	Eve .....	1865	Smith	Sulphur white	
24	4	Mrs. Sharp .....	1868	Sharp	Rose-pink	Synonymous with Incognito.
24	4	Rev. C. Boyes .....	1877	F. T. Davis	Crimson	
24	4	St. Patrick .....	1864	Davis	Bronze-red	
24	4	White Globe .....	1858	Salter	Pearl white	Raised in Guernsey.

#### JAPANESE VARIETIES.

Position in Analysis.	Number of Times shown	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.	Remarks.
1	41	Madame C. Audiguier .....	1879	Marrouch	Deep mauve	
2	38	Jeanne Délaux .....	1882	Délaux	Dark violet brown	Synonymous with J. Délaux and F. A. Davis
3	34	Fair Maid of Guernsey.....	1871	Carey	Pure white	
3	34	Madlle. Lacroix .....	1880	Lacroix	Sulphur white	
4	28	Criterion .....	1868	Salter	Amber	
5	23	Comte de Germiny.....	1881	Veitch	Nank en, striped crimson	Imported from Japan.



## JAPANESE VARIETIES (Continued).

Position in Analysis.	Number of times shown.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.	Remarks.
5	23	Madame B. Rendatler .....	1877	Délaux	Orange, shading to yellow	Synonyms with Curiosity.
6	22	Thunberg .....	1881	Veitch	Pale gold yellow	Imported from Japan.
7	21	Elaine .....	1871	Carey	Pure white	Sent out by Dixon.
8	20	Agréments de la Nature .....	1881	Délaux	Golden yellow, shaded brown	
8	20	Peter the Great .....	1876	Carey	Lemon yellow	
9	18	Soleil Levant .....	1824	—	Pale yellow	Same as Tasselled Yellow (China).
10	17	Marguerite Marrouch .....	1878	Marrouch	Crimson, edged gold	
10	17	Monsieur Ardène .....	1878	Lacroix	Rose-lilac	
10	17	Monsieur Astorg .....	1883	Délaux	White, rose-violet centre	
11	15	Hiver Fleuri .....	1879	Délaux	Cream white, tinted rose	
12	14	Meg Merrilies .....	1870	Salter	Sulphur white	
12	14	Monsieur Tarin .....	1883	Délaux	Silvery violet rose	
12	14	Triomphe du Nord .....	1857	—	Crimson-maroon	
13	13	Fanny Bouchard .....	1879	Bouchard	White, with pink tinge	
13	13	Japonais .....	1878	Délaux	Bronze yellow	
13	13	Val d'Andorre .....	1880	Marrouch	Dull red and orange	
14	12	Dr. Macary .....	1878	Délaux	Rose, tinted white	
14	12	L'Incomparable .....	1884	Délaux	Bronze, spotted crimson	
14	12	Monsieur Délaux .....	1877	Délaux	Crimson, with yellow centre	
15	11	Alba Plena .....	—	—	Delicate creamy white	
15	11	Boule d'Or .....	1882	Bernard	Yellow, tipped bronze	
15	11	Triomphe de la Rue des Châlets .....	1876	Pertuzés	Salmon-red	
16	9	Madame de Sévin .....	1884	Délaux	Amaranth, lilac, and white	
16	9	Monsieur Henri Jacotot .....	1883	Délaux	Crimson, tipped gold	
16	9	John Laing .....	1884	Délaux	Crimson, brown-and-gold	
17	8	Baronne de Prailly .....	1868	Salter	Rose-blush	Imported from Japan.
17	8	Comtesse de Beauregard .....	1868	Salter	Light rose	Imported from Japan.
17	8	Flamme de Punch .....	1883	Délaux	Bright orange-red	Synonymous with Punch.
17	8	Margot .....	1883	Délaux	Rose-chamois	
17	8	Monsieur Brunet .....	1879	Lacroix	Lilac-mauve	
17	8	Rosea Superba .....	1883	Délaux	Rose-lilac, shaded chamois	
18	7	Belle Paule .....	1881	Marrouch	White, edged rose	
19	6	Red Gauntlet .....	1876	Carey	Dark crimson	
19	6	Sarnia .....	1876	Carey	White, shaded violet rose	
20	5	Baltimore .....	1878	Délaux	Rose-purple	
20	5	Cry Kang .....	1868	Salter	Rose-magenta	
20	5	Ethel .....	1871	—	Paper-white	
20	5	Golden Dragon .....	1867	Salter	Bright yellow	Imported from Japan.
20	5	James Salter .....	1869	Salter	Mauve	
20	5	Monsieur Moussillac .....	1883	Délaux	Deep crimson-and-gold	
20	5	Parasol .....	1879	Lacroix	Brown-amber	
21	4	Albert de Nurios .....	1882	Délaux	Reddish-crimson	Synonymous with Albert.
21	4	Fernand Féral .....	1884	Délaux	Rose-mauve and cream.	
21	4	Madlle. Moulise .....	1878	Lacroix	Sulphur-white	
21	4	Mrs. Mahood .....	1882	Mahood	Cream-white	
21	4	Mary Major .....	1882	Salter	Pale rose, shading to white	
21	4	Monsieur A. Vilmorin .....	1885	Délaux	Orange-crimson, shaded gold	
21	4	Oracle .....	1870	Salter	Rose-purple	
21	4	Source d'Or .....	1882	Délaux	Orange, shaded gold	
11	4	Sultan .....	1870	Salter	Rose-purple	

## ASPARAGUS CULTURE.

DETERMINED some time since to make a trial of the different varieties of Asparagus, I procured seed of all the varieties named by seedsmen, and tried them in the same soil and under the same mode of cultivation. The seed was sown in rows a foot apart early in April, and the seedlings were transplanted when a year old in rows 3 feet apart and 1 foot asunder in the rows on ground that had previously been trenched and well manured. The planting was effected by taking out a sloping trench on both sides the stretched line, and the plants being placed astride the ridge, and the roots spread out straight and evenly in the furrows, the sharp ridge being knocked off so as to form a seat for the plants, and when the soil was returned the crowns were covered with 2 inches of soil. They were planted when beginning to push fresh shoots, and the ground over the rows was mulched with fresh farmyard manure. The rows were kept free from weeds, and the ground salted in spring and again about June, receiving the usual pricking and manuring in winter, and in other respects treated the same as Asparagus land usually is, with the difference that a good mulching of rough manure was given in early summer between the rows.

In the third year the difference between the varieties became strongly marked. The Early Giant Purple Argenteuil had much the larger spread of "grass," being double that of Connover's Colossal, and Giant or Battersea was also superior in quantity of grass to Colossal, which meant crowns and corresponding heads for cutting in spring. Late Giant Purple Argenteuil differs only from the Early Argenteuil in being a little later. The Early Giant Purple Argenteuil pushed heads ten days or a fortnight in advance of the other, and the heads were large, very many more in number,

and they were remarkable for bright purple tips, an evidence of high flavour. Connover's Colossal produced its heads sparingly though in succession over a lengthened period, but the Argenteuil seemed to give its heads in quicker succession, and similar remarks apply to the Late Argenteuil, the heads of these varieties being given more together. Giant afforded its smaller heads but in greater profusion and in better succession than Connover's Colossal, the latter having pale-coloured heads, and less highly flavoured. Of the Giant or Battersea there were two distinct types—one had pale-coloured heads, and the other much deeper purple, and whilst the former were rounded the other is decidedly pointed. These Giant Purple Argenteuils are evidently selections of Battersea, and Connover's is only an enlarged edition of the light-coloured form of Battersea, just as the latter itself developed into giant form from careful selections of the most highly cultivated indigenous plant.

The different forms of Asparagus are all unquestionably of one type, yet even in a bed of plants from seed of the common or English Asparagus we may note some marked by greater vigour, earlier in making growth, and in affording various degrees of colour in the heads, as well as dissimilarity in other respects. Selections may be made to represent at least four varieties from any batch of common seedling Asparagus, there being (1) pale-coloured and rounded heads, (2) purple-coloured and pointed heads, and both these admit of subdivision into early and late varieties. It is much the best plan to accept the higher forms of this most esteemed of spring vegetables, and which the seedsman and cultivator alike are benefited in selecting and continuing. "Business" will outlive any petty prejudices; there is no standing still in these days.

Never think of growing Asparagus in heavy soil with a view to



profit. It answers in private gardens to make heavy land light by the addition of opening materials, such as ashes, sand, ditch scourgings, road scrapings, old potting material, the *débris* of the rubbish heap, charred refuse, burnt clay, and the lime and other rubbish of an old building, with as much manure as you like; but this does not suit the market grower, as there is so much land of a light sandy nature that only needs enriching to grow excellent crops of Asparagus. Alluvial soils also suit Asparagus admirably, but in these the crowns are much more liable to decay than in sandy loams on a higher level, and the plants are not nearly so long-lived in the low as in the higher ground, for Asparagus seems to thrive best in a loose free soil through which water can percolate freely. Water stagnating causes sourness, the roots perish, the crowns decay, the soil is so cold that growth takes place late, and the results are most unsatisfactory.

Even in good soils Asparagus is spoilt by being grown too thick. I find the results much better when the rows are 3 feet apart than when they are 18 inches, though there is much to be said in favour of thicker planting when the object is to lift every alternate row in the third year for forcing, as well as in the resulting heads for cutting in the first few years of cropping, as it is easy to plant 18 inches asunder and clear out every other row after being cut hard for a couple of years by merely chopping off the crowns. I have not had sufficient experience of the wide planting to recommend its adoption, and the removal of every other row for forcing so injures the roots of the permanent plants as to militate considerably against the produce in the coming spring. Therefore plant Asparagus permanently (one or at most two years old) at their proper distance in the first instance, and a yard apart one way and 18 inches the other is not too much if large heads in quantity, bringing the best prices, are desired.—UTILITARIAN.

#### VICOMTESSE HERICART DE THURY STRAWBERRY.

HEREWITH I send you sample of the above Strawberry gathered from 5-inch pots started in heat in the middle of January. These small pots are carrying six to eight good fruits. We have others started in heat on the same date in 6-inch pots, but they will not be ripe for six or eight days, although grown under precisely the same treatment, which shows the advantage of root-confinement in small pots for very early work. We started our first batch middle of November, and gathered on March 18th. Everything considered, I think this old favourite Strawberry will hold its own against many of the newer sorts, several of which I have discarded after giving them repeated trials for early forcing.—J. H. GOODACRE.

[The fruits received are excellent alike in size, colour, and quality.]

#### STOKING—ANTHRACITE COAL.

THE excellent articles upon stoking that have lately appeared in the Journal are worthy of careful attention from those who in course of their duties have to take responsibility for the proper attention to the heating appliances. Stoking is to many gardeners a cause of great annoyance, from those having charge of the fires neglecting to give to them that intelligent interest which is absolutely required. Temperatures in good-sized houses may be kept fairly regular by a thoughtless stoker who has his pipes now quite cool and the next burning hot, but such work will never give satisfaction, whilst in smaller-sized houses, which are now becoming the rule rather than exception as formerly, such practice is ruinous.

I have, in common with most gardeners, had considerable trouble on this account, and have tried many ways to meet it. Gardeners do not care to be always grumbling, nor do they care to send such men away with the indorsement on their characters that they cannot be trusted with the charge of forcing houses. Gardeners also are often handicapped by having to work boilers of insufficient heating power, this being my experience at the present time. To meet this the best of fuel must be used, and too often a quick bright fire all the time, with little use for a hamper. In trying at various times to make the best use of the allowance for fuel, I have watched the market and nursery growers, and from the latter of these in first instance I had the hint to try anthracite coal. This I have been doing to my great satisfaction during the last five months, and have not before passed a winter so comfortably, from the night stoking point of view particularly since taking charge in my present situation.

The coal, if mixed at the rate of four to one with ordinary small coal, will give a fierce heat, last very long time with little attention, is clean and comfortable to work, making little dust and scarcely any ash or clinker; compared with a mixture of coke and coal I have before used, the two latter are scarcely a fourth part. I have intended for some time to bring the fuel before the attention of gardeners, as for such it will prove if fairly tried a very great boon. We bank up at ten o'clock and

have good fire and heat the following morning with little labour, which was far from the case before trying this fuel.

The cost in the first instance is higher than coke, but the coal lasts so much longer and gives off so much more heat that the cost comes about equal. Two barrowloads of coal will do the work of nearly four of coke. I use little ordinary coal with the anthracite to create a better draught, as the anthracite being smokeless with us requires the addition of flame to give sufficient draught to bring out the full heat. It never cakes, but burns clear and bright. I get my supply from a dealer in Swansea, who would do well to make it more fully known by advertising it.—A HEAD GARDENER.

#### RANGE OF PLANT HOUSES, HIGHBURY, BIRMINGHAM.

HORTICULTURE is well supported in the neighbourhood of Birmingham, both the summer and autumn exhibitions being some of the best held in the provinces. This season a special effort is being made, and the Orchid Show to be held in the B tanic Gardens, Edgbaston, next month may be expected to prove one of the chief events of the year. The prizes are substantial, and there are several good collections of these popular plants in the district, from which numerous treasures will no doubt be contributed. Many visitors will be attracted to Birmingham, and those who wish to make a tour of the neighbourhood should include in their programme a journey to Highbury, Moseley, the residence of the Right Hon. J. Chamberlain, M.P., which is a few miles out and is conveniently reached by rail. Orchids have been made a specialty there for several years, and to provide better accommodation for these and other plants an extensive and well-fitted range of houses was erected for Mr. Chamberlain some time since by Mr. Henry Hope, horticultural builder, 55, Lionel Street, Birmingham. This is one of the most convenient and carefully considered range of houses devoted to plants that we have seen, and is constructed upon a plan similar to that generally adopted upon the Continent—namely, the houses are placed closely together at right angles with a corridor which connects them and permits the whole being inspected without once passing outside. The advantages of this plan can be duly appreciated in wet or cold weather, while in transferring the plants to or from the potting shed or to other houses they are not exposed to cold air, which so frequently checks them injuriously under ordinary systems. In a few trade and private establishments this principle is adopted, but it is by no means so general as it deserves to be, especially as such a corridor is useful in many ways, and can be rendered one of the most ornamental portions of the glass houses. For many cool Orchids they are admirably adapted, as can be seen at St. Albans, where large numbers in baskets are suspended from the roof, and others on blocks cover the walls. In most private gardens they are, however, better employed for climbing plants, some of the most useful and showy being grown either in pots or planted out, and trained up the walls or to the rafters. A beautiful avenue is thus formed where a plentiful supply of flowers can be obtained during the greater part of the year, as narrow borders along each side may be utilised for miscellaneous flowering plants, either permanent occupants, or like bulbs and ordinary forced plants they can be renewed as required and a continuous display maintained.

In the ground plan (fig. 47), which is drawn to a scale of 32 feet to an inch, the form of this range can be readily seen, and a few notes upon the principal occupants of the houses will convey some idea of the extent of the collection. The range runs east and west; the front, the right-hand side in the sketch, facing south, and is connected with the mansion at (1), which opens into a handsome conservatory (2), paved with Minton tiles and well furnished with Palms, Ferns, Dracenas, and miscellaneous decorative foliage and flowering plants. Adjoining this, on the left (3), is the stovehouse and a pair of Climax boilers, which heat the whole of the range besides three vineries, the same number of Peach houses, and 100 feet of pits that are not shown in the plan. The next house (4) is the fernery, 28 feet long by 20 feet wide, and devoted to a choice collection of useful Ferns, Adiantums being largely grown for cutting. From this house the corridor (20) commences, its length being 190 feet and width 10 feet, the houses opening from it on the right being each 32 feet long, but varying in width from 10 to 24 feet. The larger houses have a central stage with side shelves of slate and a path of Portland cement round, but the others have only a central path with shelves on each side. The stove (5) contains the usual flowering and foliage plants, the majority healthy specimens of moderate size, and evidently liking their position. The Orchid houses commence with No. 6, which is appropriated to the East Indian species and others requiring similar treatment. Dendrobiums constitute an important part of the stock of this house, D. Wardianum being particularly well-grown in pots and in pans suspended from the roof, the growths made last year being from 3 to 4 feet long and very stout. D. superbians, which some find difficult to grow, seems to succeed there, the pseudo-bulbs being 2 feet long in some cases, and as well developed as could be wished; they are grown in pans and freely exposed to the sun, a system which Mr. B. S. Williams has adopted at Upper Holloway with great success. D. Dalhousieanum is represented by an extremely fine specimen, having ten pseudo-bulbs with twenty racemes of ten or a dozen flowers each. Cyrtopodiums are in capital condition, C. niveum being a great favourite and thriving admirably. C. Lowi, C. Spicerianum, and C. Stonei are similarly good. The Cattleya house (7) is filled with Lælias and Cattleyas of all the best forms, together with some Vandas, which the gardener, Mr. Cooper, has found thrive better in the temperature of that house than in the warmer structure where



they were previously grown. He says they make much stronger roots and leaves, do not lose their foliage so readily, and flower much more freely in the cooler house. That pest the Cattleya fly has given trouble in the house named, and it has only been by cutting away all young growths

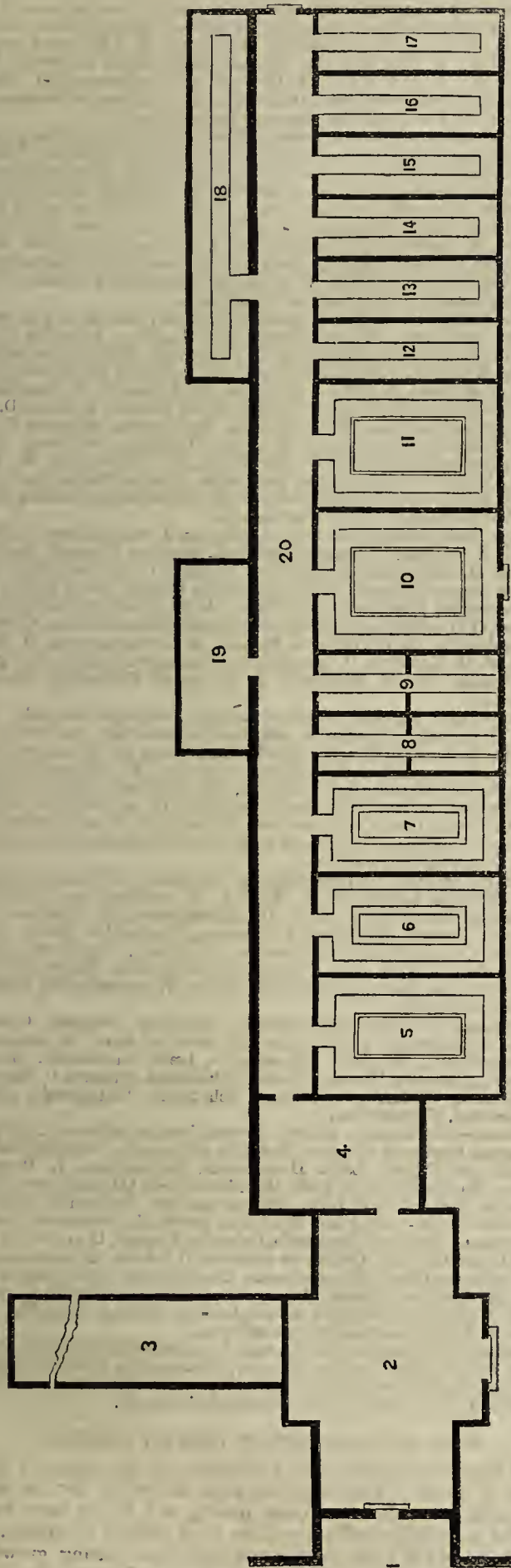


Fig. 47.—Plant house at Highbury, Birmingham.

showing any signs of containing the grub that it has been exterminated. Happily this has been accomplished, and the plants are fast recovering from the injury they received. On one occasion as many as a thousand growths were cut away infested with this pest, which is one of the worst Orchid growers have to contend with wherever it gets established. Some

of the best specimen Cattleyas are *C. Mendeli* with eleven and sixteen growths, *C. Mossiae* with eighteen growths, *C. Trianae* with six to eight growths, *C. Percivaliana*, *C. gigas*, *C. exoniensis*, and many others all equally healthy. *Laelias purpurata* and *elegans* with their white varieties are thoroughly at home, one example of *L. purpurata* having had thirty-nine flowers, and they are showing well now. Cattleyas *Dowiana* and *C. Sanderiana* are in good health, the former suspended from the roof in pans.

Two smaller houses are next reached, one (8) being in two divisions, chiefly for table plants at the warm end, *Calanthes* and *Phalaenopses* at the other. The adjoining one of similar size (9) is the Orchid show house, whither the best of the Orchids in flower are brought from the other houses and tastefully arranged with Ferns, and as the end of the house facing the door is fitted with a mirror a very pleasing effect is produced in the same way as Mr. Bull arranges his plants at Chelsea every year. Some of the most notable plants flowering at the present time are as follows:—*Cattleya Trianae*, *C. Trianae Corningi*, *Cymbidium Lowi*, *Calanthe Regneri*, *C. Turneri*, *C. vestita oculata gigantea*, *Laelia anceps*, *L. albida*, *Lycaste Skinneri*, *Dendrobium Wardianum*, *D. nobile*, *D. primulinum*, *D. Cambridgeanum*, *D. Pierardi*, *D. superbiens*, *Cypripedium niveum*, *C. Lowi*, *C. Stonei*, *Odontoglossum Alexandrae*, *O. Pescatorei*, *O. maculatum*, *O. Rossi majus*, *Oncidium crispum*, and *Cymbidium eburneum*. The large houses (10 and 11) are occupied with Azaleas, Camellias, and greenhouse *Rhododendrons*, of which some fine trained specimens are grown, as well as smaller useful examples. Houses 12, 13, and 14 are devoted to *Pelargoniums*, *Cinerarias*, *Adiantums* and miscellaneous stove plants. A few Orchids are grown in Nos. 15 and 16, the latter containing some handsome specimens of *Laelia anceps*, *Cypripedium Schlimi*, *Coelogyne cristata*, *Odontoglossums vexillarium* and *Phalaenopsis*. The last house of the range (17) is chiefly employed for *Primulas* in winter. On the opposite side of the corridor is a convenient north house, 64 feet long and 10 feet wide, where the *Odontoglossums*, mainly *O. Alexandrae*, are grown and now throwing up a great number of spikes. *Masdevallias* are also grown in large numbers, representing the best species and varieties, comprising a good proportion of *M. Harryana*, *M. Veitchi*, and others. The potting-shed (19) is heated and fitted with every convenience, completing this very compact and excellent range.

Mr. Cooper has proved the advantages of free ventilation for all the Orchids under his charge, and the system adopted at Highbury is a good one, especially where the houses are in blocks, like they are there. The air is conveyed up each side of the house in channels, and can be admitted at pleasure immediately under the pipes, so that it is warmed before it comes in contact with the plants. By this means constant ventilation can be provided whenever the weather is favourable, and during the season of growth air is admitted very freely at the top of the house as well, care being taken, however, to insure a good supply of moisture in the atmosphere. The other houses already incidentally referred to are occupied with Vines and Peaches, from which good crops of fruit are annually obtained, while the garden generally is neat and well kept.—  
L. CASTLE.

## HINTS ON ORCHID CULTURE.

(Continued from page 251.)

### SELECTIONS OF ORCHIDS.

THE number of genera of Orchids recognised in the latest authoritative work, Hooker and Benthams "Genera Plantarum," is 334, which comprise a total of about 5000 species. Of these probably 2000 are in cultivation, but very few collections comprise 1000 species, and the majority are confined to much smaller numbers, especially where quantities of one sort like *Odontoglossum Alexandrae* are grown. The variation in habit, floral form, and colours is very great, and in no generally cultivated family do we get such a remarkable range. The majority of Orchids are comparatively dwarf, and in some cases diminutive, as in the *Bulbophyllums*, the Australian *B. minutissimum*, and a Bornean species found by Dr. Beccari having pseudo-bulbs one-twelfth of an inch in length and breadth, and are the smallest Orchids known. From these we get many gradations to the stem-producing *Vandas* and *Vanillas*, and then by a great advance to *Erythorchis* or *Galeola*, which has bare scrambling stems sometimes exceeding 100 feet in length in its native habitats. The majority of cultivated Orchids produce pseudo-bulbs, and are either evergreen, as in the *Cattleyas* and *Odontoglossums*, or deciduous as in the *Calanthes*. The stem-bearing Orchids of the *Aerides* and *Vanda* type, with the leaves arranged in a two-ranked manner on each side of the stem, are all evergreen, as also are the non-pseudo-bulbous Orchids of the *Cypripedium* type, except where these have tuberous roots, when they are usually deciduous, as in the North American forms of that genus. These peculiarities of habit must be all taken as indications of the treatment required, and, as previously pointed out, the deciduous species should all have a good period of rest.

Some of the most useful genera to the cultivator are the following:—*Aerides*, *Saccolabium* and *Vanda*, mostly small flowers, soft tinted, in racemes, and fragrant; *Angraecum*, principally white or cream-coloured flowers, varying much in size, *A. sesquipedale* being the largest; *Calanthe*, rosy crimson and white, free useful plants; *Cattleyas* and *Laelias*, showy Orchids, with large flowers



representing rich and soft tints of crimson, with white and gold markings; *Cœlogyne cristata*, white with yellow blotch, very useful; *Cypripedium*, variously coloured, not bright tints except some of the *C. Sedeni* group, but free and useful; *Dendrobium*, a handsome genus with abundance of golden yellow tints, or crimson purple and white in combination; *Dendrochilum*, small flowers, but in *D. glumaceum* very fragrant; *Lycaste*, white and crimson, very durable; *Masdevallia*, free useful plants, white, crimson, scarlet, and orange; *Odontoglossum*, chiefly white or yellow with brown spots and markings; *Oncidium*, a large number with bright yellow flowers; and *Phalenopsis*, white and rosy crimson. These comprise the most effective Orchids, but there are many other small genera, including species of great beauty. The principal curiosities as regards floral structure are found in the genera *Bulbophyllum*, *Catasetum*, *Cynoches*, *Coryanthes*, *Gongora*, *Mormodes*, and *Restrepia*, which present some extraordinary forms. The following will give some idea of the number of species in the leading genera, a few of the largest or best known being selected:—*Epidendrum* 400, *Pleurothallis* 350, *Dendrobium* 300, *Oncidium* 250, *Stelis* 150, *Maxillaria* 100, *Spiranthes* 100, *Masdevallia* 100, *Eria* 80, *Odontoglossum* 80, *Cœlogyne* 50, *Cypripedium* 40, *Cattleya* and *Lælia* 20 each. There are sixty-one monotypic genera—that is, comprising only one species each, and there is a large number with less than a dozen each.

**WHITE-FLOWERED ORCHIDS.**—White varieties of several Orchids are now much in demand and realise high prices; while sometimes the ordinary type of the species may be only worth a few shillings, as in *Lycaste Skinneri*, the white variety *alba* is sold for as many guineas. Of the cheaper white-flowered Orchids, such as *Odontoglossum Alexandræ*, *Cœlogyne cristata*, and *Phalenopsis grandiflora*, many are now being grown for market, and, together with the coloured *Dendrobium nobile*, make a feature in the florists' windows in Covent Garden Market. The following is a selection of the best white-flowered Orchids:—*Acranthus Leonis*, *Angræcums*, *Anguloa eburnea*, *Calanthe Turneri nivalis*, *Cattleya Dominiana alba*, *C. Percivaliana alba*, *C. Skinneri alba*, *Cœlogyne cristata alba*, *Cymbidium eburneum*, *Cypripedium niveum*, *C. Sedeni candidulum*, *Dendrobium Deari* (very useful), *D. infundibulum*, *D. formosum*, *D. Jamesianum*, *Lælia albida*, *L. anceps alba*, and other varieties, *L. elegans alba*, *Lycaste Skinneri alba*, *L. Harrisoniæ alba*, *Masdevallia tovarensis*, *Odontoglossum Alexandræ*, *O. Pescatorei*, *O. pulchellum*, *O. Roezli album*, and *O. vexillarium album*. Some of these are not pure white, but there is very little colour in the majority, the *Lælias*, *Odontoglossums*, and *Cœlogyne* being valuable for cutting.

**ORANGE AND SCARLET-FLOWERED ORCHIDS.**—These tints are not very abundant, though shades of yellow are very numerous in the *Oncidiums* and *Dendrobiums*. The following are a dozen of the best of these tints, which are very effective, arranged with other lighter coloured flowers:—*Ada aurantiaca*, *Epidendrum vitellinum*, *E. aurantiacum*, *E. cinnabarinum*, *Lælia cinnabarina*, *L. flammea*, *L. harpophylla*, *Masdevallia coccinea*, *M. ignea*, *M. Veitchiana*, *Renanthera coccinea*, and *Sophranitis grandiflora*.

#### ORCHIDS FOR EVERY MONTH.

A supply of Orchid flowers can be easily obtained throughout the year; some like *Odontoglossum Alexandræ*, producing its blooms at all seasons, others like *Lycaste Skinneri*, last for a considerable time, and others are almost constantly in flower from the succession of blooms they bear. Orchids are by no means constant in their time of flowering, but the great majority of flowers are produced from March to midsummer, some of the *Lælias*, *Calanthes*, and others yielding an autumn and winter display. The following list by Mr. Cummins, gardener to A. H. Smee, Esq., The Grange, Wallington, is a record of the times of flowering as observed in that establishment, where large numbers of species are grown. It will be understood that the months under which the plants are arranged are those in which the flowers expanded, and that some were consequently extended into the next or perhaps the following months. Though the periods named cannot be taken as fixed, they will serve to indicate what may be expected to flower at the principal seasons.

**JANUARY.**—*Cypripedium insigne* and varieties, *C. venustum*, *C. Boxallii*, *Cœlogyne cristata*, *C. sparsa*, *C. speciosa*, *Dendrobium Ainsworthii*, *D. crassinode*, *D. Devonianum*, *D. nobile*, *D. revolutum*, *D. primulinum*, *D. speciosum*, *D. Wardianum*, *Dendrochilum uncatum*, *Lælia albida*, *L. anceps*, *L. elegans*, *L. superbiens*, *Masdevallia ignea*, *M. Estradæ*, *M. Normani*, *M. polysticta*, *M. triangularis*, *Maxillaria aromatica*, *M. cruenta*, *Odontoglossum Alexandræ*, *O. cariniferum*, *O. maculatum*, *O. pulchellum*, *O. Rossi majus*, *Oncidium Forbesi*, *O. flexuosum*, *O. ornithorhynchum*, *O. serratum*, *O. varicosum*, *Phajus grandifolius*, *Phalenopsis amabilis*, *P. grandiflora*, *P. Sanderiana*, *P. Schilleriana*, *Pilumna fragrans*, *Sophranitis grandiflora*, *Zygopetalum Mackayi*.

**FEBRUARY.**—*Ada aurantiaca*, *Brassavola glauca*, *Calanthe Regneri*, *Cattleya amethystoglossa*, *C. bulbosa*, *C. Percivaliana*, *C. Trianae*, *C. chocoensis*, *Cœlogyne flaccida*, *Compactia falcata*, *C. macroplectron*, *Dendrobium aggregatum majus*, *D. heterocarpum*, *D. luteolum*, *D. infundibulum*, *Epidendrum crassifolium*, *E. erectum*, *Helcia sanguinolenta*, *Odontoglossum*

*Pescatorei*, *O. radiatum*, *O. odoratum*, *O. triumphans*, *Oncidium cornigerum*, *O. Jonesianum*, *O. O'Brienianum*, *Lælia harpophylla*, *Lycaste Skinneri*, *Vanda cœrulescens*, *Phalenopsis Stuartiana*.

**MARCH.**—*Angræcum citratum*, *A. Ellisi*, *A. falcatum*, *Cattleya citrina*, *C. Lawrenceana*, *Cœlogyne ocellata*, *C. hololeuca*, *Chysis aurea*, *C. bractescens*, *Cypripedium argus*, *C. barbatum*, *C. ciliolare*, *C. hirsutissimum*, *C. Sedeni*, *C. villosum*, *Cyrtopodium Andersoni*, *C. Stalterianum*, *Dendrobium barbatulum*, *D. Jenkinsi*, *D. primulinum giganteum*, *D. fimbriatum oculatum*, *D. superbiens*, *D. Freemani*, *D. Pierardi*, *Epidendrum sceptrum*, *Lycaste plana*, *Odontoglossum Halli*, *O. Oerstedii*, *O. Phalenopsis*, *O. Roezli*, *O. cordatum*, *Oncidium cucullatum*, *O. Cavendishianum*, *O. unguiculatum*, *Phalenopsis Boxalli*, *Vanda tricolor*, *Zygopetalum crinitum*.

**APRIL.**—*Aerides Leeanum*, *Acineta Humboldtii*, *Arpophyllum giganteum*, *Brassia Keiliana*, *B. verrucosa*, *Cattleya Mendeli*, *C. intermedia*, *C. Skinneri*, *Colax jugosus*, *Cymbidium eburneum*, *Dendrobium Cambridgeanum*, *D. thyrsoiflorum*, *D. densiflorum*, *D. secundum*, *Epidendrum alatum*, *E. vitellinum majas*, *E. xanthinum*, *E. fragrans*, *Masdevallia Harryana*, *M. Lindeni*, *M. Shuttleworthii*, *M. Chimæra*, *Me-ospinidium sanguineum*, *Odontoglossum cirrhosum*, *O. Cervantesi*, *O. vexillarium*, *O. citrosium*, *Oncidium concolor*, *O. Marshalli*, *O. longifolium*, *O. fuscatum*, *Leptotes bicolor*, *Lycaste fulvescens*, *L. Dowiana*, *L. candida*, *L. Skinneri*, *Phalenopsis Manni*, *P. Ludde-manniana*, *Saccolabium guttatum*, *Vanda teres*.

**MAY.**—*Camarotis purpurea*, *Aerides Fieldingi*, *Cirrhaea viridi-purpurea*, *Cœlogyne pandurata*, *Bulbophyllum Lobbi*, *Cattleya Aclaudiae*, *C. crispa*, *C. Mossiæ*, *Cymbidium aloefolium*, *C. Lowianum*, *Cypripedium caudatum*, *C. Hookeri*, *C. Lawrenceanum*, *C. Lowii*, *C. Pearcei*, *C. Stoneanum*, *Dendrobium chrysanthum*, *D. albo-sanguineum*, *D. Falconeri*, *D. japonicum*, *D. moschatum*, *D. chrysotoxum*, *D. lituiflorum*, *D. Parishii*, *D. Lowi*, *D. macrophyllum*, *D. suavisimum*, *D. transparens*, *Epidendrum fragrans*, *E. macrochilum*, *Galeandra Devoniana*, *G. nivea*, *Huntleya violacea*, *Leptotes bicolor*, *Masdevallia amabilis*, *M. Houtteana*, *M. Wagneriana*, *M. Veitchiana*, *Maxillaria Harrisoni*, *Lælia purpurata*, *Odontoglossum cordatum*, *O. Halli*, *O. hastilatum*, *Palumbina candida*, *Saccolabium Blumei*, *S. curvifolium*, *Vanda Denisoniana*, *V. Batemannii*.

**JUNE.**—*Aerides Ballantianum*, *A. crispum*, *A. crassifolium*, *A. Fieldingi*, *A. Lobbi*, *A. odoratum*, *Brassia maculata*, *Anguloa Clowesii*, *Dendrobium Bensoniæ*, *D. infundibulum*, *Cattleya Warneri*, *C. Forbesii*, *Cypripedium barbatum nigrum*, *Govenia fasciata*, *Lycaste Deppei*, *Lælia crispa*, *Masdevallia Peristeria*, *Maxillaria grandiflora*, *Odontoglossum Lindleyanum*, *O. tripudians*, *O. Uro-Skinneri*, *O. sceptrum*, *Oncidium macranthum*, *O. reflexum*, *O. tricuspidatum*, *O. crispum*, *O. Papilio*, *O. Gardnerianum*, *O. luridum*, *O. Kramerii*, *O. dasystyle*, *O. prætextum*, *Stanhopea insignis*, *S. tigrina*, *S. Wardi*, *Thunia alba*, *T. Marshalli*, *T. Bensoniæ*, *Trichopilia coccinea*, *T. Galeottiana*.

**JULY.**—*Bollea cœlestis*, *Anguloa uniflora*, *Cattleya Eldorado*, *C. Gaskelliana*, *C. Leopoldi*, *C. superba splendens*, *Cymbidium pendulum*, *Cypripedium lævigatum*, *C. Veitchii*, *Dendrobium Farmeri*, *D. sanguinolentum*, *D. formosum giganteum*, *Epidendrum falcatum*, *E. radiatum*, *Grammatophyllum Ellisii*, *Masdevallia Trochilus*, *M. Normanii*, *Miltonia Regnelli*, *Odontoglossum Insleayi*, *O. Schleiperianum*, *O. constrictum*, *Oncidium bicolor*, *O. leucochilum*, *O. Lanceanum*, *O. incurvum*, *O. ampliatum*, *Phalenopsis rosea*, *P. violacea*, *Promenæa stapelioides*, *Sobralia macrantha*, *Vanda limbata*, *Zygopetalum maxillare*.

**AUGUST.**—*Aerides quinquevulnera*, *Acropera Loddigesii*, *Brassavola nodosa*, *Cattleya Loddigesii*, *C. Wallisii*, *C. speciosissima*, *Cypripedium Harrisonianum*, *Dendrobium Deari*, *D. Tattonianum*, *D. triadenium*, *Disa grandiflora*, *Lycaste Cobbiana*, *L. Smeana*, *Masdevallia Davisii*, *Miltonia spectabilis*, *Odontoglossum bicktonense*, *O. grande*, *Oncidium tigrinum*, *R. strepia elegans*, *Sarcanthus Parishii*, *S. teretifolius*, *Trichopilia tortilis*, *Satyrium aureum*, *Stanhopea aurea*, *S. oculata*, *Warszewiczella Wendlandi*, *Zygopetalum Gantieri*.

**SEPTEMBER.**—*Cœlia macrostachya*, *Cattleya maxima*, *Cymbidium Mastersii*, *Burlingtonia granadensis*, *Dendrobium Ajax*, *D. crumenatum*, *D. leucophotum*, *Houlletia odoratissima*, *Lælia autumnalis*, *L. pumila*, *Maxillaria nigrescens*, *Miltonia Clowesii*, *Oncidium aurosum*, *O. Harrisoniæ*, *O. trulliferum*, *Phalenopsis violacea Schrœderi*, *Rodriguezia planifolia*, *Vanda cœrulea*, *V. multiflora*.

**OCTOBER.**—*Burlingtonia decora*, *Cyrtorchilum maculatum*, *Cypripedium Spicerianum*, *Goodyera discolor*, *Houlletia chrysanthus*, *Dendrobium bigibum*, *Miltonia Weltoni*, *Lælia Dormaniana*, *L. præstans*, *L. Perrinii*, *L. marginata*, *Masdevallia tovarensis*, *Maxillaria picta*, *Odontoglossum Roezlii*, *Phalenopsis Esmeralda*, *P. Lowii*, *Pleione humilis*, *Sophranitis grandiflora*, *Trichocentrum albo-purpureum*, *Trichosma suavis*, *Zygopetalum Mackayi*.

**NOVEMBER.**—*Barkeria Barkerioli*, *Calanthe Veitchii*, *C. vestita*, *C. vestita lutea*, *Cattleya Holfordi*, *Cœlogyne assamica*, *C. falcata*, *Cymbidium giganteum*, *C. sinense*, *Cypripedium niveum*, *Dendrobium heterocarpum*, *Philippinense*, *Epidendrum ciliare*, *Masdevallia oethoides*, *Maxillaria venusta*, *Miltonia Moreliana*, *Oncidium cheiroporum*, *Pleione lagenaria*, *Vanda Sanderiana*, *Zygopetalum crinitum cœruleum*.

**DECEMBER.**—*Angræcum Scottianum*, *A. sesquipedale*, *Barkeria Skinneri*, *Cattleya dolosa*, *Cypripedium concolor*, *Dendrobium nobile cœrulescens*, *D. Paxtoni*, *Lælia peduncularis*, *Odontoglossum gloriosum*, *O. Insleayi*, *Leopardinum*, *Pholidota imbricata*, *Sophranitis cernua*.

#### TWO HUNDRED CHEAP USEFUL ORCHIDS.

The appended list contains a selection of the cheapest Orchids suitable to form a good representative collection for an amateur commencing the culture of these plants, and it has been made as diversified as possible, excluding those most difficult of culture. They are arranged in the houses which suit them best during growth, but it will be understood that when in flower or resting the plants of the warm houses can be placed in cooler quarters. Where not otherwise stated the plants can be grown in pots in peat and sphagnum. Few are named for blocks, baskets being preferred for the reasons before explained.

**WARM HOUSE.**—*Aerides crassifolium* (basket), *crispum*, *odoratum*, *roseum*, *virens*; *Anæctochilus* (peat, sand, and sphagnum), *Lowi*,



setaceum; *Angræcum citratum*, sesquipedale; *Arundina bambusæ-folia* (peat and loam); *Cypripedium caudatum*, concolor (peat, sand, and lime), *Lawrencianum*, niveum, *Spicerianum*, *Stonei*, *superbiens*; *Cyrtopodium punctatum* (loam and manure); *Dendrobium aggregatum* (pot or block), *Ainsworthi*, *Dearei*, *formosum*, *luteolum*, *macrophyllum*, *thyrsofolium*, *Wardianum* (basket); *Dendrochilum filiforme*, *gluma-ceum*; *Epidendrum bicornutum* (peat); *Galeandra Devoniana* (peat); *Huntleya violacea* (peat); *Ionopsis paniculata* (block); *Limatodes rosea* (peat, loam, and sand); *Mormodes pardinum* (peat); *Oncidium zebrinum*; *Phalænopsis* (pot, basket, or block) *amabilis*, *grandiflora*, *Luddemanniana*, *Schilleriana*; *Saccolabium* (basket), *ampullaceum*, *Blumei majus*, *curvifolium*, *giganteum*; *Scuticaria Steeli* (block); *Thunia alba*, *Bensoniæ*, *Marshalliana*; *Vanda teres*, *tricolor*, *Parishi*; *Vanilla aromatica*.

INTERMEDIATE HOUSE.—*Acineta Humboldti* (basket); *Aerides Fieldingi*, *japonicum*, *maculosum*; *Angræcum falcatum*; *Batemannia Melcagris*; *Brassavola Digbyana* (block); *Brassia Lanceana*, *verrucosa major*; *Broughtonia sanguinea* (block); *Burlingtonia* (basket, sphagnum) *candida*, *fragrans*; *Calanthe* (loam, leaf soil, and manure) *Masuca*, *Veitchi*, *vestita*; *Cattleya Acklandiæ* (block), *amethystoglossa*, *crispa*, *Dowiana* (basket), *Eldorado*, *gigas*, *guttata*, *Leopoldi*, *intermedia*, *labiata*, *Mendeli*, *Mossiæ*, *Skinneri*, *Trianae*, *Walkeriana* (C. bulbosa, block), *Warszewiczii*; *Chysis bractescens*; *Coelogyne ocellata*; *Colax jugosus*; *Comparettia falcata* (block, sphagnum); *Cypripedium barbatum*, *Harrisonianum*, *Roezli*; *Dendrobium chrysanthum* (basket), *chrysotoxum* (peat), *crassinode* (basket, sphagnum), *densiflorum* (peat), *Devonianum* (basket, sphagnum), *Falconeri* (basket), *heterocarpum* (aureum), *nobile*, *Pierardi* (basket), *primulinum* (basket, sphagnum); *Epidendrum nemorale*; *Goodyera pubescens* (sphagnum); *Lælia cinnabarina*, *elegans*, *harpophylla*, *majalis*, *Perrini*, *purpurata*; *Leptotes bicolor* (peat); *Lycaste* (peat), *aromatica*, *Harrisoniæ*, *Skinneri*; *Miltonia* (peat), *cuneata*, *spectabilis*; *Odontoglossum Phalænopsis*, *Roezli*, *vexillarium*; *Oncidium ampliatus majus*, *flexuosum* (sphagnum), *Forbesi* (block), *Papilio* (block), *sphacelatum*; *Peristeria elata* (loam and leaf soil); *Phajus grandifolius* (loam, leaf soil, and manure); *Sobralia macrantha* (peat); *Uropedium Lindenii* (loam, sand, and peat); *Vanda cœrulea*; *Zygopetalum* (peat), *crinitum*, *Mackayi*.

COOL HOUSE.—*Ada aurantiaca*; *Anguloa* (peat), *Clowesi*, *uniflora*; *Arpophyllum giganteum* (peat); *Barkeria elegans* (block); *Bletia hyacinthina* (loam and leaf soil); *Cattleya citrina* (block); *Chysis aurea*; *Coelogyne cristata*; *Cymbidium* (peat and loam) *eburneum*, *giganteum*; *Cypripedium insigne* *Maulei*, *Sedeni*, *venustum*, *villosum*; *Dendrobium Jamesianum*, *Disa grandiflora* (peat, sand, sphagnum, and manure); *Epidendrum vitellinum*; *Lælia acuminata*, *albida* (block), *anceps*, *autumnalis*, *Dayana*; *Masdevallia Davisii*, *Harryana*, *igneæ*, *Lindenii*, *polysticta*, *Shuttleworthii*, *Tovarensis*, *Veitchiana*; *Maxillaria grandiflora*, *venusta*; *Mesospinidium sanguineum*; *Nanodes Medusæ* (basket); *Odontoglossum Alexandræ* (crispum), *Cervantesi*, *cirrhum*, *citrosum*, *cordatum*, *gloriosum*, *grande*, *Halli*, *Insleayi*, *maculatum*, *odoratum*, *Oerstedii* (pot or block), *Pescatorei*, *pulchellum*, *Rossi* (basket or block), *triumphans*; *Oncidium cheiroporum*, *concolor*, *cucullatum*, *Marshallianum*, *ornithorhynchum*, *tigrinum*; *Pescatorea cerina*; *Pilumna fragrans*, *Pleione* (loam, peat, sphagnum, and sand), *humilis*, *lagenaria*, *maculata*, *Wallichiana*; *Promenæa citrina* (peat); *Sophronis grandiflora* (pot or basket); *Stanhopea* (basket, sphagnum), *aurea*, *grandiflora*, *tigrina*; *Trichopilia* (peat), *coccinea*, *suavis*; *Trichosma suavis* (peat).—AN AMATEUR.

#### THE WAKEFIELD PAXTON SOCIETY.

THE ninth annual dinner in connection with this useful and flourishing Society was held in the Society's meeting-room on Tuesday evening, the 23rd ult., and, as on previous occasions, the proceedings were of an exceedingly pleasant and satisfactory character. The esteemed President of the Society (Mr. T. Senior, solicitor) was in the chair, and he was supported by Alderman Reynolds (the Mayor) and other gentlemen. Mr. Herbert Chapman, the senior Hon. Sec., was prevented from attending owing to the death of his father. The company, which numbered seventy gentlemen, included the following deputation from kindred societies in neighbouring towns:—Mr. Simmonds and Mr. E. Austin, Sheffield and Hallamshire Gardeners' Society; Mr. W. K. Woodcock and Mr. Eadon, Sheffield Floral and Horticultural Society; Mr. T. Gartery and Mr. Winter, Rotherham Gardeners' Society; Mr. King and Mr. Levitt, Barnsley Paxton Society; Mr. W. Grix and Mr. G. Hemming, Leeds Gardeners' Benefit Society; and Mr. E. Elliott, Huddersfield Paxton Society. The room was tastefully decorated with evergreens, plants, and flowers.

The President explained the objects of the Society in an admirable speech, saying that the members, who are chiefly professional and amateur gardeners, meet to study and discuss everything in connection with botany and horticulture. The members met to impart knowledge to one another; to give and receive information on all matters connected with the science of horticulture. They had a very valuable adjunct in

the form of an excellent library of some 300 volumes, and they had been instrumental during the past year in forming the Yorkshire Association of Horticultural Societies, which was likely to effect a great deal of good. The members of the Paxton Society had met some forty-four times during the year to listen to essays, and he thought they had derived great pleasure from them. A window garden exhibition was held every year in connection with the Society, and he trusted that in future it would be better supported. He concluded by expressing a hope that the Society would continue to flourish, and that all who were then present might live to meet in that room on many similar occasions.

A special meeting of the members was held on Friday evening last. The Committee, by securing the services of an eminent botanist, had provided a rare treat for its members, and one which was much appreciated by a good audience. Leo H. Grindon, Esq., of Manchester, was the lecturer, and his subject "The Trees of Old England," proved very instructive and interesting. In the course of his lecture Mr. Grindon gave many clear illustrations of the various habits and peculiarities of one tree from another, and pointed out the best methods of distinguishing the several varieties by these peculiarities. The lecture was made popular by exclusion of technicalities and by the introduction of many racy remarks and appropriate selections of poetry, which frequently called forth hearty applause from the audience. A number of very fine etchings and engravings of the principal specimens of the various trees, and also dried specimens of foliage and bloom, were much admired and proved highly instructive. The best and most suitable trees for planting in towns was the principal topic for the ensuing discussion, and those most favoured for this purpose being the Plane, Lime, Elm, Hawthorn, and Alder.

The question of the Ash and Oak breaking into foliage irregularly, and thus indicating various changes in the weather, was very clearly answered by the lecturer stating that he knew of two Ashes and one Oak growing together, and that one of the Ashes was always in leaf before the Oak and the other one after it; and advising anyone who believed in the theory to mark twenty or thirty of each kind of tree and notice them for, say, three seasons; it would then be observed that most of the trees would adhere to the same order each year, and thus prove that the theory which many people believe as being "weather signs," were due to want of fair observation.

A hearty vote of thanks was accorded to Mr. Grindon on the motion of Mr. W. L. Skinner and seconded by Mr. T. Garnett.

#### VEGETATION IN BUCKINGHAMSHIRE.

THE season will be late in this vicinity. Vegetation has just commenced; but not a vestige of green can be seen for miles, neither Turnips or any of the Brassicas. A few Broccoli have escaped, but they are very small owing to the dry summer last year. Until within the past ten days in many places the country looks as if it had suffered from long drought, even the Blackberry bushes look as if scorched. On the 31st of March we had a very severe storm of hail accompanied by lightning and heavy peals of thunder. In sheltered gardens Crocuses, Aconites, and Daffodils are commencing to look gay. Polyanthes and Hepaticas also are flowering freely, while the hedgerows are beginning to be perfumed with Violets and Primroses, but in many the latter have not begun to flower yet, an almost unprecedented occurrence at the 1st of April. Ribes sanguineum is just showing colour; Gooseberry buds are beginning to expand, and Currants are budding fast. Beyond these the trees and hedges seem dormant. Few birds have yet begun building, although the rooks made a start a fortnight ago, but operations seem at a standstill with them on account of wind and cold.—J. F.

#### WREATH MAKING.

THERE are many different ways of setting about this, but the simplest and most efficient method is to get a strong piece of wire, turn it to the size wanted, allowing for an overlap of at least 1½ inch at each end. Tie these overlapping pieces with ordinary bouquet wire, and a firm neat joint will be made. If the wire is too light to insure the stiffness necessary, make a double or treble coil, and fasten in three or four places in order to keep the wire together. The next step is to procure some coarse green moss, and the coarser is the better. Work the moss evenly round the wire, fixing it on with a strand of bouquet wire. When the moss has been firmly and neatly fixed press it gently so that the under and upper portion may be slightly flattened, and from 2 to 2½ inches across.

We come now to the best method of preparing the flowers; and it may be noted here that very indifferent flowers may be used, provided these are employed as a groundwork, and a few very choice blooms are worked in to stand out from these others; but in any case, whether poor flowers are used or the most choice alone, they all require to be prepared in the same manner—viz., by wiring. It may appear to those who have not much of this class of work to undertake that to wire flowers is a great waste of time, but it is not so. It saves time, whilst it also saves flowers, and it is the only method of procedure that gives the worker complete command of his material. The best kind of wire to use for stalks is the smallest size sold by all-dealers in these articles in pound bundles cut to one length. For tying, the bright tying wire, sold on quarter-pound reels, is best. This is cut with a pair of scissors into 6-inch lengths, which is generally quite long enough for most flowers. No general rule can be laid down as to how flowers are to be wired, so much depends on the flowers themselves and the manner in which it is intended to use them. *Eucharis*, *Roses*, *Tulips*, *Carnations*, *Lily of the Valley*, greenhouse *Rhododendrons*, and *Camellias* are wired singly; *Violets* and *Snowdrops* in bunches, while



Marguerites, Clematis indivisa, and white Narcissus may either be wired and use singly or wired singly and arranged three to five on a common stalk. Double Pelargoniums may either be wired with one wire to a truss or the individual pips wired in clusters. These are merely examples of what may be done with certain flowers which are in season.

There is a method to be observed in attaching the flowers to the wire. Camellias, as is well known, are each pierced with two to three wires, in order to keep the petals intact. Roses are best pierced with a couple of wires, which keep the buds in shape and hinder the petals from unfolding. Carnations sometimes require to be wired in the same way. The wire in any case must be brought up as close as possible to the bloom. In some cases it may be pushed through the top of the flower, in others the wire may be run through the calyx and the top end bent down a little. In every case the flower is attached to the wire by twisting the fine wire round both. It does not require tying in any way. In making up bunches, say of Violets, only a few flowers must be attached to one wire, five or six being enough. The bunch can be of any size by tying as many of these small bunches as may be wanted on to one common stalk of wire. The Marguerites are tied singly to short pieces of wire and tied together to form a head of flowers in exactly the same way. Lily of the Valley is wired by placing a wire along the underside of the stalk and twisting the fine wire round both wire and stem. From 1 to 2 inches of stem is quite sufficient to have on any flower. The wired flowers must be kept separate by placing each in separate glasses or flower pots, and standing them in a row ready to the hand of the operator as he may want them. Where Arums are kept in flower the whole year round, these come in very well for wreath-making. The blooms must not be large, those 5 to 6 inches by 4 inches being of a suitable size. Arums are not wired, and must be fixed on the wreath before any other of the materials. After the Arums have been fixed, any of the flat flowers selected as a groundwork are then put in. These and all the other flowers are secured on the moss by piercing the moss with the wire, and after the flower has been drawn to its proper position from the underside the end of the wire is turned and thrust back into the moss. That is all the fastening any of the flowers require.

We like to have the flowers not crushing each other, but close enough together to make sure that nothing but flowers will be visible. Proceeding with the making of our wreath, after a sufficiently massive groundwork has been prepared, the blooms which are intended to give character to the wreath are fixed in according to taste and secured in the same way as the others. It is to be noted that blooms like Eucharis, Lilliums, and single flowers of Rhododendrons should always be kept above the other flowers. The finer buds of Roses should also be used in the same way. Lilies of the Valley and Roman Hyacinths are, of course, kept well out from other flowers, while Marguerites, double Primulas, *Cœlogyne cristata*, and the Clematis above mentioned may also be employed to lighten the effect. When special flowers are wanted to be present in the wreath these may either be dotted among the others, or a few of them prominently massed together in three or four little clumps. Flowers of soft shades, as Violets, are best dotted all over the wreath. Bright flowers, as red Roses or Geraniums, show better in little masses. In going over the flowers to get each exactly into the position it shows to the best effect, the value of wired blooms will become evident, for every one is completely at the command of the operator to set as he pleases.

All that remains to be done now is to set the flowers in Fern fronds according to the taste of the maker. Gardeners work in the Ferns first and the flowers afterwards, but good wreath-makers add the Ferns as a setting after the flowers have been put on. No setting is better, or indeed equals, Maidenhair Fern for this purpose, stiff hardy-grown fronds being best. These do not require to be wired, but if the Fern is soft it is better a wire should be used. The fronds are fixed by gently pushing the flowers aside and pushing the stalk of the frond among them, so as to have a neat fringe of green round both the outside and inside of the ring. Pieces of Ferns are pushed in among the general body of flowers in the same way, but when extra good flowers are employed the fringe of green will be sufficient.

As to size, that again is a matter for taste, but it must be remembered that a small wreath of very good flowers is more desirable than a larger one which has to be composed of flowers of poor quality. The parcel post is largely used now for the transmission of wreaths, and the rules of the Post Office place a strict limit on the size to which wreaths can be made. A much finer cross can be sent by post. Crosses are made in the same way as wreaths, but country gardeners can make a very good base for the beginning of operations by constructing a wooden cross on which to tie the moss. Again, very neat floral bouquets, flat on one side and the top of flowers and Ferns, are very effective and well fitted to send per post. These bouquets are made entirely of wired material without the employment of moss for a foundation. Some stiff Fern is used to lie on the underside of the arrangement, any common Fern doing for the purpose. The flowers are tied on with a long strand of bright wire, and are arranged to taste. The usefulness of wired stems in these flat bouquets is most clearly seen, for by bending the wires at right angles, or indeed any angle, we get the bloom to face and position it is wanted. Maidenhair is worked in among the flowers as a setting. This is a cheap and effective method of employing flowers, especially when there is difficulty in finding enough flowers for all purposes.

Boxes for packing wreaths are made of a width just sufficient to hold the wreath to be sent; the depth is 4 inches. The four sides of the box are made of three-eighths of an inch deals, the bottom and lid of three-sixteenths of an inch deals. The box is tacked together with small wire nails. In packing a wreath it is sufficient to fill its open centre with wadding, as also the space at the four corners of the box, finishing with a

sheet of the same material between the wreath and the lid of the box; but it is found that by tying the wreath to the box, in addition to the packing, more satisfaction is given to the receiver. The simplest method of fixing the wreath to the box, is to bore four holes in the bottom of the box—two holes at opposite sides, and exactly beneath the wreath, and  $1\frac{1}{2}$  inch apart. A piece of strong string is run through each of the two holes, bringing the strings from the outside to the inside. When the wreath is laid in the box the two ends of each string is tied tightly down on the wreath, and renders it practically immovable. A ticket is sent on the top of the wadding, telling the person who unpacks the wreath to cut the string on the outside, and then lift out the wreath. We have for the past few years discontinued fastening lids of flower boxes by means of nails. The only fastening they require is to tie them tightly with stout string, to one end of which the address label is knotted. It only remains to warn those who have not experienced the close application of postal rules that it is only safe to keep wreaths amply within the dimensions as to size. We have experienced more than once the dissatisfaction of having to do our work over again, not because the size was beyond the limit, but for the reason of the weight being a little over the 7 lbs.—B.

### OLD v. NEW VARIETIES.

It is evident "A. L. G." practises what he preaches respecting novelties, judging from the list of vegetables enumerated in his last note (page 250). Without a doubt it is as "A. L. G." stated in a former number, a very simple affair, yet if it suits him and his employer it is all that is required. It is quite possible to introduce some novelty into the seed list without adding very materially to its cost by a man that sows the seeds with judgment, not as is too frequently seen in gardens, leaving a large quantity of plants in the seed bed after all are put out that are required, to be eventually wheeled to the rubbish heap, or dug in as useless. It is far better to sow smaller quantities. Under these circumstances I am able to obtain some novelty each year for my own pleasure, and generally speaking, to my employer's benefit.

"A. L. G." appears to assume that only gardeners of long standing can profitably grow new varieties, but if a man of however long standing were to adhere to such a restricted selection, he would never become a good judge of vegetables. It is as much a necessity for the young man to venture in novelties as for the most experienced, or how can he be expected to keep pace with the times? I do not question that the Aigburth Sprouts grown by "A. L. G." were good enough for exhibition, yet that would not tempt me to alter my opinion of the variety. If he could see that sort and Reading Exhibition side by side as grown here, he would, I think, decide in favour of the latter. The soil "A. L. G." has to deal with must be very different from what I have here, for if I had put out plants and watered twice only with such weather as experienced last summer, I am certain Brussels Sprouts would have been a very poor crop. I am asked by Mr. Easty to account for the name Gilbert's Universal, given in my previous note. It was a name given me in mistake by a neighbouring gardener, which doubtless he had confused with the Savoy sent out under that name.—S. B.



WE understand that at the next meeting of THE HORTICULTURAL CLUB the discussion at the conversazione will be opened by the Rev. C. Wolley Dod with a paper on "Daffodils," a subject which will at that time (April 13th) be much before the horticultural world.

— AT A meeting of the Fruit and Vegetable Committee of the ROYAL HORTICULTURAL SOCIETY, held at Chiswick on March 30th, Mr. George Bunyard in the chair—present Messrs. J. Burnett, W. Miller, S. Ford, G. T. Miles, and G. Norman—first-class certificates were awarded to the following varieties of Potatoes, as especially useful for late work:—Chiswick Favourite (Veitch), white round, rough skin heavy cropper, white flesh of good flavour. Bennett's Surprise (Bennett), white kidney, white flesh, good cropper, and of fine quality. King of Russets (Lye) large round, pink, with a somewhat deep eye, white flesh, rough skin, good cropper, and good quality.

— MESSRS. CROMPTON & FAWKES inform us that their slow-combustion boiler is on view at the BUILDINGS TRADES EXHIBITION now being held in the Agricultural Hall, Islington, but as tickets are not forwarded to us by the authorities we are unable to report on exhibits of interest to our readers at the Agricultural Hall Shows.

— WE are requested to state that the HEREFORD AND WEST OF ENGLAND ROSE SOCIETY'S SHOW will be held on the 9th July instead of the 8th, as advertised.



— MR. J. MUIR writes as follows on the PRESERVATION OF THE BRITISH FLORA:—"Many British plants may be scarce or extinct, but in my opinion few can have been exterminated, as suggested by Mr. Shirley Hibberd, p. 213, through prizes being offered for wild flowers at shows, and I am sorry to see any attempt being made to limit a very interesting department at many cottage and other horticultural shows. For several years past I have judged at many shows in Wales and England, besides being connected with the offering of wild flower prizes at Margam Show, and ninety-nine exhibits out of every hundred have simply been composed of cut flowers, Ferns, and Grasses, which could be secured without interfering with the roots. The extinction of plants must have been caused by another and perhaps a more learned class than the general exhibitors of wild flowers."

— THE most attractive trees in pleasure grounds in the neighbourhood of the metropolis at the present time are ALMONDS. They are densely covered with delicate blossoms, forming bouquets of silvery peach colour that are highly effective in contrast with the dark foliage of surrounding evergreens. They do not appear to have sustained any injury from the prolonged cold, but rather the reverse in retarding the blossoms, which have expanded under favourable conditions for their development.

— IT is questionable if the demand for CABBAGE PLANTS was ever so great in the south of England as at the present time. Throughout the long period of extremely cold weather there was little snow to protect them; and if, as has occasionally happened in previous years, snow in northerly districts has preserved them, good plants would find a ready sale if advertised.

— WRITING ON OUTDOOR MUSHROOM BEDS during the late severe weather, Mr. J. F. Barter observes, "The winter recently closed has been the most difficult I have experienced; and it has only been by the most careful attention that I have been able to gather regularly two and three times a week since the last week in October. Of course I did not expect such a crop as in ordinary winters, but the gatherings have averaged fully two-thirds of a full crop. I am afraid, however, that some amateurs and beginners in outdoor Mushroom culture have had a bad time, yet hope they will not be disheartened, but do as I have done many a time—try again till success is won."

— RELATIVE to successful Mushroom culture and the importance of STRONG SPAWN the experience of Mr. R. Holmes, The Gardens, Sister's House, Clapham Common, is worth recording. He forms a long bed 4 feet wide and a foot deep down the centre of a cool span-roofed vinery, adding to the length of the bed about 3 yards at intervals of three weeks. The last section but one was spawned six weeks ago with old spawn, and the crop is now just appearing; while the last addition, in which strong new spawn was inserted three weeks afterwards is now covered with large fleshy Mushrooms. This example of rapid Mushroom production we have seen, and a more striking example of the influence of strong spawn has never come to our notice.

— WE have received the schedule of the EAST GLOUCESTERSHIRE ROSE SOCIETY. The Show is to be held at Moreton-in-the-Marsh on Tuesday, July 13th. Four classes are provided for nurserymen, and twice that number for amateurs, the leading prizes being £5, £3, and £2 respectively for thirty-six and twenty-four varieties. All the classes are open. The Right Hon. the Earl of Redesdale is President of the Society; and the Revs. J. W. Clarke, Leamington House, Moreton-in-the-Marsh and F. R. Burnside, Ivy House, Chipping Campden, Honorary Secretaries.

— A CORRESPONDENT, "W. M.," desires to know if DUC DE MAGENTA STRAWBERRY is a fine variety worthy of general culture. We have not grown it. Duc de Malakoff produces very large fruit. Growers of Duc de Magenta will oblige by communicating their experience with reference to this variety.

— PEACH BLOSSOMS AND POLLEN.—"T. F. R." remarks:—"During a long experience I have never seen the blossoms of the Peach, Nectarine, and Apricot so destitute of pollen as they are this season; the pollen cases have burst and are void. Your readers who have Peaches in bloom should carefully watch and transfer the pollen where it is abundant to the flowers which have none. In many cases the pistil even is wanting. It is very certain that without pollen there will be no fruit. The late frost in September may have injuriously affected the trees."

— "I AM disappointed in my DAFFODILS this season," says "A. M. B.," "and am glad to see the subject taken up in the Journal. Last year a small popular selection purchased from a distinguished firm did exceedingly well. This season the results will not be so good. Doubtless the strain upon the vitality of all vegetable life during the exceptionally severe and prolonged winter has proved damaging to many early spring garden favourites. Anemones have been sadly cut. Narcissi and Jonquills look weakly. In a week or so later I will, if permitted, chronicle more closely the few varieties of Daffodil I cultivate, with date of flowering this spring, and number and appearance of blooms."

— WE have received a copy of an official publication, entitled "A LIST OF SEEDS OF HARDY HERBACEOUS, ANNUAL, AND PERENNIAL PLANTS GROWN IN THE ROYAL GARDENS, KEW, 1885," and which we understand constitute the surplus stock intended for distribution to botanic and colonial gardens or in exchange. The list is a very full one, about 3000 species and varieties being enumerated and arranged in their natural orders, sub-orders, or tribes, as adopted in Hooker and Bentham's "Genera Plantarum," the genera being arranged alphabetically. The authorities for the names are given, together with the principal synonyms of many of the plants, and the native country. It is also stated whether the plants are annuals, biennials, or perennials, and thus forms a really useful catalogue for reference, especially as it appears to have been carefully compiled and revised. It can be obtained at the Royal Gardens, price 6d.

— MR. B. R. CANT of Colchester has sent us a basket of fruit of the noted D'ARCY OR ESSEX SPICE APPLE in wonderfully fine condition at this late period of the Apple season. They are plump, tender, rich in flavour, and everything that a dessert Apple of the first quality ought to be. Everybody ought to grow the Essex Spice.

— MR. J. DOUGLAS sends us the following note on the PRIMULA CONFERENCE AND NATIONAL AURICULA SOCIETY (SOUTHERN SECTION):—"Now that the weather has changed the prospect of a satisfactory exhibition of Primulas has been very much improved, and amateurs as well as professional growers are anxious to make it a great success. Everyone cannot make an exhibition of scores of distinct species; but many persons could exhibit a few, and any interesting or curious forms of the common Primrose would be acceptable. Notice of intention to exhibit and also of the nature of the exhibit should be sent to Mr. Barron, Royal Horticultural Society, South Kensington, S.W., at least a week before the Exhibition. The dates are April 20th and 21st. The National Auricula Exhibition is to be held at the same time on the 20th only; but the Primula Conference Committee would be glad if exhibitors would kindly leave their plants for the two days. The prizes offered for Auriculas are open to all competitors, except that there are classes for large and small growers. Entries must be sent to Mr. Barron as above. I shall be pleased to send schedules to intending exhibitors, and the Treasurer, Mr. H. A. Rolt, 170, Hartfield Road, New Wimbledon, informs me that the subscription list for this year is not yet complete. He will be greatly obliged if members will forward their subscriptions before the 20th inst."

— THE British Benevolent Society, Los Angeles, California, has issued a WARNING TO EMIGRANTS, from which it appears that there were so-called agents in London who received a bonus for every person they could induce to go out to "Antelope Valley" and adjacent places. They were told that they could purchase land there, and many parted with all they had, but upon arriving, found they had before them in "Antelope Valley" nothing but desert land. The Society had been called upon to help a large number of such unfortunate emigrants. There is also another system of fraud—namely, inducing youths to come over under the impression that, for a bonus varying from £20 to £70, they would be taught "fruit-farming, have a comfortable place, and receive a monthly salary." Advertisements appeared in London newspapers for this purpose, headed generally "To Gentlemen's Sons," "A Practical Farmer," &c. If persons are desirous of emigrating they can do so without paying a bonus to anyone; and, further, it should be known that it is useless for persons to go out unless they had at least £200 when they arrived. There was room for good domestic servants, but clerks, book-keepers, and such-like there was no room for; and even mechanics were not in request. The only thing of use really was capital, and any having such would realise 10 per cent. per annum. The Society only desired to expose the false statements made by so-called agents.



— MR. JOSEPH MALLENDER sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, for MARCH, 1886:—Mean temperature of month, 38° 1'; maximum on the 21st, 63° 2'; minimum on the 7th, 8° 4'. Maximum in the sun on the 6th, 126° 6'; minimum on the grass on the 7th, 5° 4'. Extreme range, 54° 8'. Warmest day, 21st; mean temperature, 56° 1'. Coldest day, the 8th; mean temperature, 23° 0'. Mean temperature of air at 9 A.M., 38° 3'; mean temperature of soil 1 foot deep, 38° 6'. Nights below 32° in shade, sixteen; on grass, twenty-one. Total duration of sunshine in month, eighty-four hours, or twenty-three per cent. of possible duration. We had eight sunless days. Total rainfall, 2.35 inches. Rain fell on nineteen days. Average velocity of wind 11.1 miles per hour. Velocity exceeded 400 miles on six days. The month is remarkable for its heavy snowstorm on the 1st, and for the extreme cold from the 4th to 11th, and for the great contrast between the first and second halves of the month. The first fortnight is very similar to March 1883, but the mean temperature for the month is much higher than in that year, when the cold lasted all through the month. The rainfall is larger than in any year since 1877. We are greatly indebted to the snow for the protection it gave to many of our herbaceous plants, as we have not lost any. The Tea Rose bushes have suffered most; nearly all the wood is killed above the winter wrap of fern manure. Vegetation I think is twelve to twenty days later than last year.

— It is said that American brides are seeking all kinds of novelties for their WEDDING FLOWERS. A young bride wore white Sweet Pea blossoms combined with Orange flowers on her wedding day. Another bride wore Stephanotis in her hair and on her bodice, and carried a bouquet of Orange flowers, buds and fruit, with a mixture of Orchids. Some are substituting the wedding basket for the bridal bouquet. This basket is a round, flat satchel of Italian straw, which is swung on the arm by a satin sash. One side of the basket is festooned with pink Roses, and the other with Niphetos buds and Orange blossoms. The pink side is carried outside entering the church, and after the ceremony the white side is turned to be most conspicuous.

— WE have been favoured with the following note on THE FIRST FLOWER SHOW IN THE SCILLY ISLANDS. This was held Tuesday, 30th March, in the Infant School, St. Mary's, Scilly, under the auspices of the "Scilly Island Bulb and Flower Association;" President, T. Algernon Dorrien-Smith, Esq.; Secretary, Mr. Clement W. Mumford; Treasurer, Mr. William R. Mumford. The Exhibition to these islanders was one of unusual interest, the exhibits consisting mainly of well-grown Daffodils, of which the three groups were well represented. The competition for the numerous prizes was keen, and the inhabitants of the little town of St. Mary's took a lively interest in the Show. The weather being somewhat stormy the off islanders could not appear on the first and second day, but on Thursday the storm abated and a few additional exhibits came in and were awarded prizes according to merit. The exhibition of 1887 it is expected will be double or treble the size of 1886. One end of the room was occupied by Mr. T. A. Dorrien-Smith's exhibits, consisting of upwards of 160 varieties of Narcissus tastefully arranged on a groundwork of green moss. The prize of the day was £5, offered by the Earl of Mount Edgumbe, for the best exhibit of marketable flowers of all descriptions, this was carried off by Mr. W. P. Mumford with fifty varieties of Daffodils. The same prize will be offered in 1887, and possibly others, as many who visit the islands and enjoy the hospitality of Mr. T. A. Dorrien-Smith may desire to follow the example of the Earl of Mount Edgumbe. The Judges were Mr. Vallance, Tresco Abbey Gardens, and Mr. Peter Barr, London. In August there will be an exhibition of dry Narcissus bulbs grown on the Scilly Islands of the most marketable sorts, prize by T. Algernon Dorrien-Smith, Esq., £10, and again in 1887, the prize being £25.

## THE PRIMULAS.

(Continued from page 208.)

*P. PUMILA*, Kern. (*P. minima* × *daonensis*, Kern.).—This is well named *pumila*, as it is amongst the smallest Primroses we have in cultivation. It resembles *minima* more than the other parent, and, like the first, grows best when plenty of limestone is added to the soil. A partly shady spot sheltered from cold winds should be chosen, and it will be all the better on a steep slope or wall. The leaves are cuneate, with seven to nine large triangular teeth, edged with small sessile glands. Flower stem an inch or so in height, mostly two-flowered, and covered with soft

glandular hairs. Calyx campanulate, with teeth half as long as the tube. It flowers with us April and June. Found by Porta in 1873 in the Southern Tyrol at elevations of from 6000 to 7000 feet above sea level.

*P. PULCHRA*, Watt.—One of the new Himalayan Primulas lately collected by Watt in Jongri, and also by Sir J. D. Hooker at 12,000 and 14,000 feet in Lachen, Sikkim Himalaya. It seems to be a free flowerer, from two to ten flowers in a head, large, and of a deep purple colour. We have not seen it in cultivation yet.

*P. PUSILLA*, Wall.—This seems to be a variable species, the colour of the flowers ranging from rose to deep purple. It requires great care in management. In the seedling state they are so fragile that we prefer standing the pots in a saucer of water when dry rather than water them overhead. Raised mounds



Fig. 43.—*Primula sibirica*.

in a bog suit it best, as it suffers from excessive moisture. It grows about 6 inches in height, carrying a head of few flowers as large as *farinosa* or larger. Leaves on short stalks, rugose, narrow cuneate, with deeply dentate margins. Flowers June. Native of the Himalayas. Syn., *humilis*, Steud.

*P. REEDII* (Duby).—A new Himalayan species found last year by Dr. Duthie on wet rocks near Ralan Glacier. A large quantity of seed, we believe, has been distributed, and we hear of several successes in raising it. In habit and leafage it is not unlike *involucrata*, the flowers are, however, larger, white or pale sulphury yellow, apparently very free flowering.

*P. RETICULATA*, Wall.—This old Primrose has again been introduced to our gardens, but probably its ungraceful habit of growth will deter most cultivators from troubling with it. The flower stem is weak, a foot or more in length, with a few small yellow flowers. It requires much the same treatment as *sikkimensis*, which it resembles very much in habit and shape of leaf, the latter having much longer petioles. Native of the Himalayas. Flowering with us in June. Syn., *altissima*, Don; *speciosa*, Don.

*P. ROSEA*, Royle.—Among hardy spring-flowering Primroses



few better repay for any little extra attention than this little gem. Like all the others that require bog treatment, the leaves die during winter, leaving buds as in *involucrata*, but, unlike that species, *P. rosea* pushes up the flower stem first, many of the blooms being full open before the leaves show any sign of unfolding. During the growing season, and indeed all through the year, it requires plenty of water. Those found in the Kalu district eastward of Afghanistan were growing by the sides of streamlets, with their long white stringy roots far in the water. The best plants we have seen have been in swampy places fully exposed, besides its being a week or two earlier than in the ordinary border. It is very easily propagated, each bud or crowning forming a separate plant, readily detached from the others. It can also be raised from seed, which ripen freely in this country, and as it seems inclined to vary the latter may not be the least profitable means of increase. The flower stems vary from 2 to 6 inches in height, carrying about a dozen flowers in a close compact head. The flowers are about an inch in diameter, bright rosy carmine, and very attractive, and welcome so early in the year. Leaves ovate lanceolate, forming a dense tuft; margins sharply crenate, and revolute when young. It flowers in April. The variety *elegans* (*P. elegans*, *Duby*) we have not seen, but a deep coloured form called *grandiflora* is a distinct advance on the type. Native of Himalayas, &c., at from 10,000 to 12,000 feet above the sea level.

*P. RUSBYI*, *Hort. Ware*.—This, as far as we can judge, is a good species, although the name is not published in any works to which we have access. We first saw it flowering in the nurseries of Mr. T. S. Ware, Tottenham. It grows about 6 inches high, the scape carrying two or three large purple flowers, very handsome, and lasting a considerable time in bloom. Leaves ovate lanceolate, tapering into a narrow winged petiole 2 or 3 inches long. The serratures abrupt, small, and pointed. It flowers towards the end of summer, and we believe is of American origin. It is deciduous in winter, dying down to a bud. It seems to thrive best in a shady moist situation in a strong loamy soil, to which has been added plenty of small pieces of sandstone.

*P. SALISBURGENSIS*, *Floike*.—A small hybrid between *subglutinosa* × *minima*, *A. Kern*, and as far as leaf character goes taking more after the latter than the former parent. The leaves are cuneate in outline, the upper quarter of the blade set with from seven to nine largish triangular teeth, bottle green at the apex. The unpaired tooth in the middle of the leaf, unlike some of the other hybrids, is no longer than the two next ones, and the tip of the lower one on each side is somewhat blunted and shorter than the others. Scape not viscous, as in *glutinosa*. The bracts oblong, almost as broad as the calyx teeth, and shorter than the calyx tube. Flowers large for the size of the plant, dark peach red, the limb being longer than the corolla tube. Found in similar localities to the parents. It seems to thrive best with plenty of limestone broken small and pressed firmly round the roots. An eastern or western exposure, with plenty of water during March and April. It flowers in the latter month.

*P. SAPPHIRINA*, *Hb. fil* and *Thom*.—Is another of those gems from the Lachen valley, Sikkim Himalayas, where it is found at altitudes of from 13,000 to 15,000 feet above sea level. It has been lately introduced among others to our gardens, and, though perhaps a difficult, it will prove an interesting species. It is doubtful whether it will withstand the damp of our southern winters, but northern growers are sure to succeed with it as with the others. It rarely grows more than 1 or 2 inches high, the leaves forming small rosettes less than an inch in diameter. Petioles very short, with large deep teeth round the margins, with a sparse scattering of white hairs on the upper surface. The flowers few in a head, are less than half an inch in diameter, deeply bifid, of a bright or pale lilac blue. It flowers about the end of July or August. A shady corner seems the most suitable; rather dry during winter, but with plenty of water during the late spring months.

*P. SERRATIFOLIA*, *Gusmus*.—A hybrid between *minima* × *tyrolensis*, *Gusm.*, which we have not yet seen in flower. It has much the habit of *P. minima*, leaves narrower, and less cuneate. The name is rather unfortunate, as M. Franchet has given the name *serratifolia* to one of the new Yunnan Primroses. It is allied to *P. obtusifolia*, and a desirable garden plant.

*P. SIBIRICA*, *Jacq.*—There would be little difficulty in classing this species under *P. involucrata*, *Wall*—at least, in some of its various forms—and we believe that in a dried state they are difficult to distinguish, especially the varieties *kashmiriana* and *integerrima*, the latter from the Altai Mountains and the former from Kashmir (its southern limit), it being confined chiefly to Northern Europe, Asia, and Arctic America. The flowers, however, of all the forms we know are purplish rose-coloured, with

the exception of *integerrima*, which more nearly resembles *Munroi* in that respect. It grows freely on a low peaty bed, not too damp, and exposed to full sunshine. *P. sibirica* (fig. 48) forms a large rosette of oval or roundish oval leaves, with petioles unwinged about the length of the blade, free of powder, and quite glabrous on both sides, the margins entire or sparingly and unevenly crenate. The scape rises from 5 to 9 or 10 inches in height, carrying an umbel of about six drooping flowers, about an inch in diameter, purplish rose with a yellow eye, segments bifid and rounded; the involucre is exactly the same as *involucrata*, perhaps smaller, and the bracts less pointed. It flowers in April. Distributed from the Cambridge Botanic Gardens about 1830. Native of N. Siberia, &c. Syn., *intermedia*, *Ledeb.*; *rotundifolia*, *Pall*; *P. s.* var. *Finmarchica*, *Jacq.*.



Fig. 49.—*Primula sikkimensis*.

of which *norvegica*, *Retz.*, is a synonym, is smaller in all its parts than the type, and not so useful as a garden plant. *P. s. integrifolia* we have not seen; *P. s. integerrima* is taller, more slender, and having smaller flowers; *P. s. kashmiriana* is also smaller, but more numerous flowered than the type.

*P. SIEBOLDII*, *Morr.*—Another name for the well-known *P. cortusoides* var. *amœna*, so plentiful in gardens. The flowers are much larger than the type, various coloured, and having longer petioles. An excellent plant for either the rockery or mixed border, and may be increased to any extent by division of the roots in autumn. It forces very well, and may be had indoors a month or so earlier than it flowers outside. A group makes quite a feature in the greenhouse in late spring.

*P. SIKKIMENSIS*, *Hook.* (fig. 49).—Of all the Himalayan Primroses yet introduced to English gardens there are none to our thinking that exceed or perhaps even equal the present species when properly managed; for even this Primrose has its peculiarities, which must be suited as far as possible to the means at hand. A very prevalent belief amongst hardy plant growers is that many of this class of Primrose are either annual



or biennial, or, at least, are best treated as such; and, so far as our experience goes with *capitata*, *elliptica*, *Stuartii*, &c., it is the only means of procuring an unfailing crop of flowers annually. The plants rarely flower before the second year, and to keep up a supply it is necessary to make an annual sowing, so that the seedlings of this year will be depended on for the supply of flowers next year, and so on. *P. sikkimensis* ripens seed freely in our climate, and these sown when gathered soon germinate, and may be pricked out in boxes or rich beds in a shady situation and well watered through the summer months. In autumn, when the leaves have died down they can be shifted to their flowering quarters, lifting a good ball of soil with each plant. The bed in which they are to flower should be deep, rich peaty, and well shaded, and the result will abundantly repay all the trouble taken with the seedlings. The flowers being extremely handsome, emitting a delicious fragrance, which always succeeds in attracting one to them. The leaves all proceed from the root, from 8 inches to a foot long, obovate and oblong, and without meal on either side; nerves reticulated, prominent on the under side, dark green above, doubly and sharply serrated margins. The flower stem grows about a foot high, carrying an umbel of from ten to twenty or more large sulphury yellow sweetly scented flowers; involucre of from five to seven narrow sessile leaflets, half the length of the pedice's. "It inhabits wet boggy places at elevations of from 12,000 to 17,000 feet elevation at Lachen and Lachong," covering acres with a yellow carpet in May and June. It was first introduced by Sir J. D. Hooker about 1850. It flowers with us May and June, but may be forced earlier, and makes an excellent pot plant. It is perennial, but the best flowers are produced the second year after sowing.—D.

## THE INSECT ENEMIES OF OUR GARDEN CROPS.

### THE APPLE.

(Continued from page 72.)

EVEN as in the human body health is best maintained by the observance of natural laws, not by swallowing physic; so with fruit trees, and the Apple particularly, it is better to adopt such simple measures as are likely to prevent insect attacks than to apply remedies that may check or kill these foes in their various stages. It is in dark and crowded—perhaps also damp—orchards, that moths find themselves screened from observation while depositing eggs, and their broods of caterpillars are less likely to be seized by insect-eating birds; also if the grass, as sometimes happens in such orchards, is suffered to grow long, caterpillars blown off by the early summer gales escape hurt, and manage to crawl up the trunks to feed again. I doubt whether the fires of weeds or refuse which one sees about some orchards, kindled with a view of keeping off insects, do much good; the smoke is almost sure to be freely diluted by air, and moths hover at a distance, to return as the fire dies down. Owing to their peculiar habits, some moths that seek out the Apple are astir during the colder months of the year, when the fruit-grower entertains no apprehensions, and their progeny pierce the buds the moment they begin to expand. The cause of the mischief is often mistaken; thus a gardener picks off some damaged buds, and discovering ants about them, believes they have been the culprits, though, in fact, they have only come to suck the juices exuding from cuts made by caterpillars, which have probably migrated. Indeed, as I have myself noticed, ants favour us by dragging or carrying to their nests some young caterpillars, and they certainly do not breed or foster them, if they do their aphidic pets.

In some places on the Continent the caterpillar of the lunar spotted pinion (*Cosmia pyralina*) is common on the fruit trees, and particularly fond of the Apple. The moths fly in June or July, and the eggs appear to remain unbatched till the spring; the young caterpillars feed early and are of full size during May. These are of voracious habit, thick and fleshy, greenish, with a few paler spots and two dark lines. They are easily detected, but as yet the species has only been occasionally noticed in England, along the southern counties chiefly. The worst moth foe of our Apples is, I should say, the caterpillar of the small ermine moth (*Yponomeuta padella*)—that is, as far as the buds and leaves are concerned; though that promiscuous feeder, the caterpillar of the winter moth (*Chimatobia brumata*), is generally seen upon the Apple each year in varying numbers. About its habits it may suffice to remark that the green eggs are laid upon the bark of the trunk or branches by the wingless female, which crawls thither on emerging from the pupa at the end of the year. Flight to her being impossible, the late Edward Newman, when there occurred an outbreak of this pest amongst the cider orchards of the Midlands, wisely suggested that any method must be good by which she could be kept from climbing the trees. After experiment a composition of Stockholm tar and cart grease was proved to answer admirably daubed round the trunks in a ring, care being taken that the moth cannot get up by the aid of posts or loose branches. It does no hurt to the Apple laid on in November or December, but would do so when the weather was sufficiently warm to cause some absorption. It is, however, desirable to slit the bark next year, since the composition tightens it somewhat. Whatever eggs may be laid below this line they will not be likely to produce caterpillars that can reach to the buds; and if examination be made at night with a lantern many moths may be picked off. Such search should always be carried out during mild days of December

in the case of wall fruit trees where the insects cannot be thus prevented ascending. Some people indulge the expectation that a cold spring like the present may destroy the germs of life in the eggs of this and other species, but there is no ground for this idea; the emergence is delayed, that is all. Many caterpillars must be killed by the rains and winds of spring, though they keep themselves for a while concealed in the unexpanded buds, subsequently they feed exposed, save with the protection of a few silken threads. As upon any alarm they drop, it is easy to shake them off small trees or shrubs. This caterpillar is a slim looper of a whitish green or brownish hue, usually adult in May; it then descends to bury in the earth, and as it remains under ground several months by forking the soil and other measures quantities of the chrysalis can be destroyed.

From some cause, about which I cannot be positive, the caterpillars of the little ermine moth (*Yponomeuta padella*) were abroad in very small numbers during the season of 1885. Probably a large proportion of the early brood were killed off by the damp of the preceding winter, for it is their habit to emerge in autumn from the egg, remaining torpid until the approach of spring. It is a species liable to variation as to colour and dotting; one form, which is frequent upon the Apple, and has white fore wings, with a thick cocoon for the chrysalis; while the Hawthorn kind is nearly transparent, has received the name of *Y. malivorella*, and devour it they do indeed, through the influence of numbers, small as is their individual size. Beside the effects of their jaws there is the nuisance of their webs, which are drawn over the branches and shoots to enable them to travel readily, also perhaps affording a partial screen from birds, while the influence upon the growth of the tree is injurious, and it looks as if it were the drill ground of a party of spiders. The removal of these webs from Apple trees when they have reached this conspicuous stage can be managed, certainly, and all wandering caterpillars brushed or shaken to the earth, where they can be disposed of, but no fruit-tree grower should allow his trees to be thus preyed upon by the enemy; and at the period when the moths emerge it will be noticed that they crawl about the branches in a sluggish way, and they, too, may be hunted up and killed, since they fall should they be alarmed, so that they may be gathered and crushed.

The moth, fortunately, is conspicuous by its contrast of colour, and the caterpillar has also black spots, but upon a ground of dull yellow or buff and a black head, which shows more markedly when the creature is little. July is the month that brings forth the moths in most profusion; then the eggs are laid, so coated over with a glossy substance that we do not see them on the twigs, but they are artfully placed near blossom or leaf buds, generally near the former, so that they have food at hand when they rouse. No doubt it is advisable whenever the moths have been seen about to wash or syringe the trees well with any compound, or even a simple solution of soap just at the time the young brood are likely to be shifting from their winter retreats to attack the first growth. In France and Germany, where some years the Apples over many miles of country demonstrate the ravages of this pest, it is noticed that the ermine caterpillars begin to feed in the autumn, like the brown tail, then commencing again in the spring, they are of a size to do mischief more rapidly than they can with their English habits. Hawthorn hedges near orchards do sometimes appear to draw away the ermine moths from the fruit trees."

An insect of the same group, but smaller, lives, in some instances, on the buds of the Apple; it is popularly called the "red bud caterpillar" from its deep red hue; the moth is the black cloak (*Spilonota cynosbatella*), allied to the "brown cloak," unpleasantly abundant as caterpillars upon Roses during some summers. As the eggs are laid singly it is almost impossible to discover them, else there is a long space while life is dormant in them, the caterpillar seldom appearing until the blossoms open, when they are gummed together by the insect, which migrates from flower to flower till full fed, and should supply run short burrows into any immature fruit it finds. This is a species which sometimes gives trouble in houses, where the ermine moth seldom enters.—ENTOMOLOGIST.

## ORCHID NOTES.

ORCHIDS AT WYNCOTE.—In Mr. C. W. Neumann's garden at Allerton there is a narrow house between the other houses, in fact it connects the two, and has a central path with a narrow stage on each side. This house has been gay with Orchids in bloom. A plant of *Lælia superbiens* was very noticeable. It is a strong grower, and the flower spike was fully 5 feet in length, with fifteen or sixteen large flowers at the end. The individual flowers are 3 or 4 inches in diameter, and of a beautiful deep rose, marked with dark red, the lip being crimson and yellow. *Phalænopsis* were also very fine, especially *P. Schilleriana*, which have been grown in the stove and placed in their present position while in flower. The whole of these are grown on large blocks of wood, with a small portion of sphagnum moss. The blocks are secured in 10-inch pots by means of charcoal, which is covered with moss to retain moisture during the summer. The numerous roots have attached themselves to the wood, and extend in some cases 18 inches below the plant. The healthiest and most robust of these plants is now bearing 120 flowers, and was raised a few years ago from a flower stem. *Dendrobium Ainsworthii*, a good dark variety, was in full beauty, also *D. Wardianum*, *D. Devonianum*, and *D. crassinode*, a fine variety. In another house I noticed some fine plants of these varieties swelling their flower buds, and the old *D. fimbriatum*, which has generally been seen at St. George's Hall in such splendid condition, was showing flowers in abundance as usual. I also observed in a basket a splendid piece of that useful and beautiful *D. Dearei* growing most luxuriantly. Several forms of *C.*



Trianae were in bloom, both light and dark forms, and also D. Percivaliana, Coelogyne cristata, of which Mr. Mease has some splendid plants, and several Odontoglossums were in bloom.

Orchids are not numerous, but there is probably as many Cattleyas and Laelias represented by grand healthy pieces that would fill a large house. The house, in fact, where Mr. Mease has grown such flowering plants as Stephanotis, Clerodendrons, and others, was ready for their reception. The Cattleyas had previously been grown in the Croton house and the general stove, where most of them had to be grown when shade was necessary. The plants that have been subjected to this treatment are all strong and healthy, which affords another proof that Orchids can be successfully grown in mixed collections of plants. They certainly are better by themselves if houses can be provided for them, but where such is not the case cultivators need not be deterred from growing a few with other plants.—W. B.

## THE WEATHER AND VEGETATION.

### ENGLAND AND WALES.

#### BEDFORDSHIRE.

THE early part of January opened fine, but on the 7th the mercury of the thermometer fell to 20°, or 12° of frost. From this date snow and sharp frosts followed, but on the 13th the temperature rose to 39°, but during early morning rain and snow fell, and at 9.30 A.M. a storm of unusual violence, accompanied with rain and hailstones, passed over this neighbourhood from the north-west, doing considerable injury in some parts of the county, uprooting trees and damaging glass structures. From the above date to the 14th February frost and snow followed; the temperature rose to 34° on the 14th, but from this date to the 18th March we had frost for thirty-two consecutive nights—very unusual weather for the month of March; in fact, I cannot remember such a long spell of frost and snow. The sharpest frost of the season occurred on the 7th of March, when the mercury of the thermometer fell to 15°, or 17° of frost. Although we registered frosts on eighteen nights during March, taking the three months of the present year the frost has been more persistent than severe. The day temperature has been unusually low, the thermometer seldom registering more than 42°, or 10° above freezing point, at midday. On March 18th, from 6 A.M. to 12 P.M., the temperature rose from 26°, or 6° of frost, to 48°, or 16° above freezing point, a rise of 22° in six hours.

The drought of the past year and the late severe weather has greatly reduced the garden produce. Never do I remember during my gardening career such a scarcity of common vegetables as at the present time. Kitchen gardens as a rule look like barren wastes, and the outlook for the next two or three months is anything but encouraging. The old stools of Cabbages are all killed, the autumn-planted stock is nearly as bad, Brussels Sprouts are over, and the different Kales are nearly all used; as for Broccoli, I fear many of them will be killed. Turnip tops in previous years have been very valuable, but this season they are very scarce. The same remark applies to Swedes and other root crops. This is owing to the drought of the past year. Parsnips are selling at from £6 to £7 per ton, owing to the long continuance of frost. The market gardeners are very much in arrears with their work; in fact, quite three weeks or a month behind. Several breadths of Onion bulbs for seeds are not yet planted, and very little Onion seed has been sown, which in favourable seasons is usually sown in February. In previous years most of the early Potatoes have been planted by the middle of March, but much ground is unprepared for crops. Great mortality has taken place amongst our feathered songsters; many blackbirds and thrushes have been found dead, and some of the rarer finches, such as the bramble-finch. The house sparrows seem to have held their own, as we know too well, for they have made sad havoc with the buds on Gooseberries, young Cabbage plants, and Spinach. We usually use black cotton strung about the bushes after pruning. This plan has been found sufficient for the sparrows until this season. Bullfinches have been busy amongst the fruit buds, not only Gooseberry buds, but also Apple-bloom buds. We have found it necessary to cover our Gooseberry bushes with nets as well as the cotton plan after pruning. Fruit trees generally seem well set with blossom buds. The Pears, in spite of the long-continued frost, seem to be swelling fast; Peach and Apricot bloom are beginning to show colour.—G. R. ALLIS, *Old Warden Park, Biggleswade*.

#### BERKSHIRE.

It is pleasant to be able to notice that in view of a thorough break-up of the long wintry weather we may now look forward for a favourable fruit season. We are now able to see to what extent plants have suffered from the past severe weather. All vegetables are cut; the recent cold cutting east winds told more upon them than the whole winter, which, no doubt, will have done so, more or less, in different localities, varying with the latitude and elevation in which they are grown, also with the nature of the soil. Broccoli are very much cut, also Lettuce. Some varieties of Strawberries are looking bad just now. Roses, I find, have also suffered; but I am pleased to say our fruit trees are looking well, and since the change both Apricots and Peaches are coming into bloom. Should we have mild nights, with hot sunshine, no doubt they will soon be all out. Our temperature on the 19th ult., at noon, stood at 85° in the sun, with a night temperature on the 20th of 45°.

The winter commenced here on October 12th, 1885, when 6° of frost

were registered, and Scarlet Runners, &c., were cut down. After two or three mornings' frost fine weather followed till October 29th, when 8° of frost were registered, the daily readings varying from 4° to 8° till the night of November 14th, when the thermometer registered 14° of frost, and winter fairly set in, with ice 1½ to 2 inches in thickness, though the frosts at this period were rimy, and heavy fogs prevailed. During November the sun only appeared on eleven days, and then only for a very brief period at noon. December was a brighter month. The sun appeared on seventeen days; keen frosty nights, and E. or N.E. winds: 16°, 12°, 17°, and 17° of frost was registered on the 9th, 10th, 11th, and 12th respectively, also 15° at Christmas. The new year opened with sunless days and foggy nights. On the 6th of January the temperature rose, and snow fell to a uniform depth of 10 inches. On the 7th, 21° of frost was registered, and on the 8th, 28° of frost (being the lowest reading here since December 24th, 1877, when the thermometer fell to zero). On the 11th a thaw set in, snow now fast disappearing, and 1.31 inch of rain fell in twenty-four hours.

The weather during February and beginning of March was more trying. 12°, 16°, and 18° of frost were frequently recorded, with bitter cold east winds: 16° was registered on March 17th, and 5° on the 18th, when a gradual thaw set in, and rain fell. As already stated, the minimum temperature during the night of the 20th inst. being 45°. The air is now soft and spring-like, with westerly breezes; the maximum reading of thermometer in the sun being 81°.—THOMAS JONES, *Royal Gardens, Windsor*.

#### CHESHIRE.

AFTER such a long winter we have been quite busy these last few days, getting Peas and Beans and other vegetables planted into the open ground that were ready started in boxes. I do not observe extraordinary damage to plants and shrubs, and not a Laurel appears to be injured, when they were all cut down in the three successive hard winters that we had nearly ten years ago. I have not kept an exact record of the temperatures, but the most that we had was above 24° of frost, and the greatest depth of snow did not exceed 6 inches here on the level.—R. MACKELLAR, *Abney Hall Gardens, Cheshire*.

#### DURHAM.

THE late severe snowstorms, which have been more or less continuous during the last three months, caused grievous distress, as all outdoor occupation, and especially land labour, was suspended for a considerable time, caused either by snow or frost, though the latter has not been so notably excessive as in the winter of 1880-81, which at the extreme was 8° below zero. The severest nights of this winter were the 18th and 19th January, which registered respectively 22° to 24°. On March 19th we had a decided change for the better, the wind veered from east to west. The effects of the storm have been much felt by vegetables; young Cabbages are flat and black, but most of them are, I think, sound at heart; Early Broccoli, no doubt, has suffered a good deal, but the late varieties, I think, will escape with a good majority, but Globe Artichokes I fear are all dead. Fruit buds of all kinds are remarkably quiet, except Apricots, which are scarce, and require protection.—R. WESTCOTT, *Raby Castle Gardens*.

#### ESSEX.

THIS has been a long and trying winter. The frosts have not been so intense as in some winters, but they have been more continuous. The lowest registered was 21° of frost on the 8th January, and 19° on 7th March. All green vegetables are much injured, many of the Broccoli are killed, Brussels Sprouts, Cabbage plants, Spinach, and Parsley present a scorched and withered appearance; even Leeks are injured. Wall-flowers, Stocks, and Pentstemons are nearly all killed. Shrubs appear to have escaped.—H. LISTER, *Easton Lodge Gardens, Dunmow*.

#### GLAMORGANSHIRE.

THE winter hereabouts is regarded as the most severe in memory. Some very severe weather was experienced in November and December but it was worse in February and March than previously. On several nights in the first week in February we registered from 10° to 16° of frost, then it became very mild and fine, but on March 1st snow fell to the depth of 6 inches; 17° of frost was experienced during the following night, and from then until March 18th we had from 8° to 14° nightly. On parts exposed to the sun the snow gradually disappeared, but in the shade it was not reduced until we had a thunderstorm on the night of March 18th, followed by rain for two days, when a complete thaw was the result. Trees and shrubs do not appear to have suffered very much, but they are unusually late. Vegetables have suffered severely; spring flowers have had a hard time; fruit trees, especially those on the walls, are later in blooming than I ever remember them, as we have often had the Apricots in blossom in February and the Peaches almost full out by the middle of March. The fields are as bare now as at midwinter, and the farmers are feeling severely the want of herbage for their sheep, lambs, and general stock.—J. MUIR, *Margam Park, Port Talbot, S. Wales*.

#### NORFOLK.

A LONG trying winter, which will be memorable here for its persistency more than for its severity, finally broke up on March the 19th, having begun about December 9th with a fall of snow. The snowstorms in Norfolk have not been so heavy as in other parts of the country. The



heaviest experienced here was January 7th, which laid about in drifts until the change of weather set in. The ground has been tolerably clear of snow throughout the winter, giving farmers and gardeners a chance to proceed with manuring. Garden crops, through the absence of snow, being so much exposed to the severity of the weather, had a scorched appearance, but have suffered but little. All fruit trees are well set with fruit buds and promise well for the coming season. The mild weather has worked a marvellous change. Grass and crops are everywhere green. The spring flowers have come with a rush, and are already plentiful. Iris reticulata, in flower last year with me on February 10th, did not open a bloom in the open border until March 22nd, and is now a mass of bloom, and the most striking object in the garden at the present time.—W.M. ALLAN, *Guntton Park Gardens*.

#### NOTTINGHAMSHIRE.

THE winter in this district has been a long and trying one for all kinds of vegetation. Commencing early in November, we had frost and snow until December 14th. From that time up to January 3rd it was comparatively mild; a period of frost and snow then set in without intermission up to March 19th, from which up to March 27th the weather was remarkably mild, and the effect on early spring flowers is magical. Snowdrops, Crocuses, Hepaticas, Scillas, Daphnes, Daffodils, Primroses, and Violets are all in flower together. The most severe frost we had here was on the 7th of March, when we had 25° of frost. Brussels Sprouts, Broccoli, Lettuce, Celery, and Cabbage suffered severely. Veitch's Model Broccoli, Asparagus Kale, and Sprouting Broccoli have stood well. Portugal Laurels have suffered the worst amongst shrubs, a few of them are killed in places exposed to the east wind. Roses are safe, no doubt the snow saved them; all fruit trees are now swelling their buds, and are promising well for a good crop. Taken altogether, the past winter will be long remembered for its unusual length and sunless days.—J. EDMONDS, *Bestwood Lodge Gardens*.

#### RUTLANDSHIRE.

JUDGING from the reports published we have been more fortunate in the midland district this season than our neighbours either north or south. We have had a long winter and much frost, but at no time very severe, the most we have had being 15° on December 11th, and also on March 7th, as registered by a thermometer certified at Kew, and which hangs in a Stevenson screen. We generally get 4° or 5° more than our immediate neighbours, as this place is situated at the bottom of a valley with a stream of water running through it. The only plants generally considered hardy here that have suffered from the frost, &c., are Wallflowers, Brompton Stocks, Spinach, Myosotis dissitiflora, and Victoria Regina Violets. The last three are severely affected. The common Laurels are very slightly browned.

The average maximum temperature here for the seventy-seven days, ending March 18th, is 38.89°. Average minimum in the screen for the seventy-seven days, ending March 18th, is 28.63°. Average minimum on the grass for the seventy-seven days, ending March 18th, is 28.02°. Total rainfall for the same period, January 1st to March 18th inclusive, 4.40 inches. Frost this season commenced suddenly on September 26th, and Heliotropes, Dahlias, Pelargoniums, &c., were cut very much. Highest shade temperature in September was 75° on 15th; total rainfall for the month 3.01 inches. October was very changeable, with several slight frosts and much rainy weather. Highest shade temperature was 63° on 16th; lowest in screen, 29°, on the 30th; lowest on grass, 30° on 26th and 30th; total rainfall for the month, 5.42 inches. November was another rainy month; the total rainfall was 3.11 inches, which fell on twenty-three days. On the 27th we had a very heavy hailstorm with thunder. The highest shade temperature was 57° on 28th; lowest in stand 21° on 16th, and 22° on 19th; lowest on grass, 24° on 16th and 19th. December was very changeable, but principally dull damp weather. The first snow of the season, only a few flakes, fell on the 4th. Lowest temperature in stand, 17° on 11th; lowest on grass, 20° on 11th; highest shade temperature, 53° on 17th; total rainfall, 0.92 inch, which fell on seventeen days. January was a very wintery month, much snow fell, which, as a rule, soon melted, but on the morning of the 25th it was 6 inches deep. The ground was covered with snow from 20th to 31st. Highest shade temperature, 52° on 3rd; lowest in screen, 21° on 19th; lowest on grass, 22° on 10th and 19th; total rainfall, 3.07 inches. February was remarkable for a low temperature and absence of either rain or snow, only 0.30 inch falling during the month, and this fell during thirteen days. Highest shade temperature, 51° on 14th; all other days the maximum was below 46°, and on seventeen of them it was below 40°; lowest temperature in screen was 19° on 15th and 20th; lowest on grass, 23° on 7th, 15th, and 27th. The wind was in a northerly direction nineteen days, and eastward thirteen days during the month. March began very wintery, snow falling all day on the 1st, and was 4 inches deep at 6 P.M., and this had not all melted on 16th, when we had another snowy day, the fall being equal to 0.21 inches of rain, but fortunately a change to milder weather set in on the 18th, which it is hoped may now continue.—W. H. DIVERS, *Ketton Hall, Stamford*.

#### SOMERSETSHIRE.

THE winter of 1885-6 has been the most protracted and trying that has occurred within memory. The frosty and easterly winds were the worst, especially during the early part of March. We had severe frosts early in December and again early in January. On the night of January 7th the thermometer fell to 11°, or 21° below freezing point. During the

early part of March we had sharp frosts every night, ranging from 6° to 18°, and on March 7th we experienced 22°. On March 18th we had a sudden change, and, on the whole, so little harm has apparently been done that we have ceased to grumble about the weather. We had but little snow, the most being on March 5th, or about 3 inches, and the bulk of this soon disappeared. Conifers and other trees are uninjured. All the winter vegetables have a scorched appearance, but none is killed, neither have we failed to maintain a fairly good supply of Brussels Sprouts and Kales, owing to the firm growth, consequent upon planting on firm ground. The Green Curled Borecole has been especially serviceable, while the Asparagus Kale will shortly yield numerous gatherings. Tripoli Onions, Parsley, and Cabbage plants are very scarce. A great number of birds died from starvation, but I find there are plenty left, more black-birds than are wanted in fact, and, strange to say, a considerable number of slugs were to be seen directly the change came. Our clayey soil now works well, and as we shall have abundance of bloom on all fruit trees I am looking forward to a prosperous year.—W. LGGULDEN, *Marston Gardens, Frome*.

#### STAFFORDSHIRE.

MY own experience is that the winter has been most disastrous to all green vegetables; Borecole stood fairly well; Broccoli was nearly all killed; autumn-planted Cabbage very much cut; Veitch's Matchless and Ellam's Dwarf has stood the best; Early Heartwell is nearly all gone; Brussels Sprouts are much injured; the Aigburth has escaped the best, and is invaluable at the present time; winter Spinach where fully exposed suffered very much, but where sheltered by a range of houses is fairly good and will be very useful as a green spring vegetable. Where houses and pits can be spared it will be a good plan to grow a supply of French Beans to meet the difficulty as far as possible, also hasten the growth of autumn-sown Cauliflowers by planting them in frames with a gentle bottom heat. As far as I can see at present Roses are not much hurt; shrubs generally I do not think are injured to any great extent. The lowest temperature registered here was on the 6th of March, when we had 20° of frost.—G. H. GREEN, *Enville Hall Gardens, Stourbridge*.

#### SUSSEX.

BRAMBLETYPE stands on a high exposed situation 400 feet above the sea level, but we did not get the frost so severe—from 11° to 18° this winter—as our friends in the valley, but we are exposed to the east wind, which affects tender shrubs and plants seriously. The Brassicas, both young and old, have suffered greatly; from a bed of 400 Cabbages planted in October not one plant remains, and all the old stems are killed. Brussels Sprouts and Borecole are nearly as bad; Savoy and Celery (Grove's Red) have stood well; Spinach, Lettuce, and Turnips are complete failures, being destroyed by wind and frost. Fortunately, with the help of some dozen spare lights, I made a reserve in January of Cabbages, Cauliflowers, Lettuces, Carrots, Radishes, &c., which will prove useful this year, and I have looked carefully over my Broccoli and am glad to find my old favourite, Knight's Protecting, the best; the others are Miller's Dwarf, Cattell's Eclipse, and Wilcove. We have 95 per cent. of the first, and about 40 per cent. of the three others.

Wallflowers are much injured, and it is doubtful if they will break again. Violets on north, east, and west borders are as bad as if they had been salted. Forget-me-nots, Aubrietia, and Pansies, are destroyed by hundreds. Shrubs have not suffered much with us, common Laurels are the worst; Roses very doubtful. Fruit trees are safe except Peaches, and some of the immatured wood must be cut back hard, but we need not fear for a crop. In the year 1880 I cut back closely, and had a good crop of fruit and well-furnished trees. I have tried it both inside and out, and have never failed with a crop.—SAMUEL JENKS, *Brambletype Gardens*.

#### WARWICKSHIRE.

THE frosts and snows have not been so severe with us as in some parts of the county, still the winter has been long and cold. For over four months we have had little sunshine, the wind north, north-east, with occasional snowstorms and frost nearly every night. The heaviest fall of snow was on 1st March, when 9 to 12 inches fell during the twenty-four hours it lasted. On 7th January and 7th March we registered 18° of frost, the most this winter. The effects on vegetation will not be known for some time. That vegetable crops have suffered very much, and spring bedding have all perished. Eucalyptus globulus that have stood the previous winters, and attained the height of 15 feet, I fear are killed. Since the 19th we have had a marvellous change, can almost see the buds and flowers expanding. First Apricot blossoms opened on the 25th, over a fortnight later than usual.—A. D. CHRISTIE, *Castle Gardens, Warwick*.

#### WILTSHIRE.

THE long-looked-for change in the weather took place here on the 18th inst. In glancing at the green crops in the kitchen garden conclusive evidence is there afforded of the weather which we have experienced. A reserve stock of autumn-raised Cabbage plants has suffered severely owing to their stems being exposed to the frost, though, fortunately, those which had been planted from the same sowing in drills 2 feet apart in September last, and which were landed up in due time, have suffered comparatively little injury. But in view of the break which the loss of the reserve plants would otherwise make in the supply of young Cabbages, which will be fully six or eight weeks late this season, we are pushing on the plants raised in heat in January last, some of the plants being pricked out in flower boxes and placed near the glass



between the rows of Potatoes just appearing above ground, and others in improvised frames on warm borders. Consequent upon the favourable change in the weather good plantings and sowings of Potatoes, Cauliflowers, Lettuces, Peas, and Broad Beans and Spinach were made forthwith, also of Cabbage, Cauliflower, Brussels Sprouts, Savoye, Carrots, Parsnips, Lettuce, and Leek seed. Several dozen ranks of Peas and Broad Beans were transplanted from pots and boxes early in February, and by way of showing that the plants after being raised in forcing houses had been properly hardened, it may be interesting to state that notwithstanding the severe frosts and easterly winds which these Peas and Beans experienced during the interval, not a single plant of either has been killed. On the contrary, the plants, though very little advanced in growth since they were turned out of the pots and boxes, are in capital condition. The varieties referred to are Sutton's Ringleader and William I. on warm borders, Carter's Telephone, Carter's Pride of the Market, Carter's Stratagem, and Culverwell's Telegraph in open plots of ground, and in the same situation are ranks of Carter's Leviathan Broad Beans, the individual plants being supported by a stick. Seeds of Webb's Wordsley Wonder and Chancellor Peas, which were sown on the 1st of February, I find, by examining the soil, are just pushing into growth. I sowed my Onions on the 20th of February, when I also made a sowing of Turnips. From the 15th of February to the 18th inst. there have been from 2° to 18° of frost every night, that of the 7th being the most severe.—H. W. WARD, Longford Castle.



#### HARDY FRUIT GARDEN.

SWELLING huds remind us that fruit blossom will soon be open, and no time must be lost in providing all available means of shelter to afford protection against cold winds and late frost. Wall copings of glass or wood should now be in position, and if we are so fortunate as to have plenty of hexagon netting, a double covering of it stretched tightly over poles driven into the ground, and fastened to the coping so that the netting is about 2 feet from the trees, answers admirably to protect blossom and foliage. Do not forget that a little extra care now may save the fruit crop; without it the crop may be lost. Hurdles thatched with straw, garden mats, branches of Fir and Yew, dried bracken, are all useful for various purposes of shelter, and all should be turned to account. Whatever is used see that there is no risk of its being loosened by high wind, or the blossom which it is intended to protect may be battered to pieces by it. Bracken may be shaken lightly upon the tops of Gooseberry bushes as a means of protection from late frost, which not unfrequently destroys the crop.

New Strawberry heds may now be made if a due provision of plants was made last autumn by planting rooted runners thickly in nursery beds of 6 or 8 inches of rough leaf mould. Once established in such material the plants are lifted with a large ball of roots and soil, they are soon growing freely in the fruiting hed, they will afford a few fine fruits this year and a full crop next year. This method of making new Strawberry heds is especially recommended for small gardens where space cannot be spared in July or August. Plant in well-drained, highly manured soil, in rows 2 feet apart, and with the plants a foot apart in the rows. Do not forget that now and onwards through the season of growth Strawberry plants are much better for a liberal supply of liquid manure, and this may easily be had for every garden in the convenient guise of house sewage. It is withheld as the fruit approaches ripeness, but it is again given after the fruit is all gathered to promote the development of strong plump crowns, from which spring the fruit crop of the following season.

As the catkins of Filbert and Nut trees become fully developed and shed pollen freely upon the pink female blossoms, the pruning may be done, care being taken to keep open the middle of each tree so as to give free admission of light and air to every part of it. In the extensive Filbert plantations of Kent the form of a shallow basin is imparted to the trees by careful training and pruning, that form being the best for the production of full crops of nuts.

#### FRUIT FORCING.

PINES.—Utilise solar heat as much as possible, employing no more fire heat than is absolutely necessary. Attend to watering regularly at least once a week, each plant being examined before water is given, and when needed supply sufficient to moisten the soil down to the drainage. Syringing may now be more freely practised at the time of closing the house for the day. Disturb fermenting beds but little, or the heat may be increased to an extent that will be injurious to the roots. Plants placed near large squares of glass will be much benefited by slight shade during the hottest part of sunny days, until the tissues of the leaves have become more hardened. Examine fruiting plants occasionally, and remove all suckers not wanted for stock, stake the fruit to keep it in an erect position. The temperature in fruiting houses should range from 70° to 75° at night, and 80° to 95° by day, successional plants 65° to 70° by

night, and 80° to 90° in the day, the younger stock of plants not taking any harm at 60° at night, and a proportionate rise in the daytime according to the weather.

FIGS.—*Early forced Trees in Pots.*—When the fruit show signs of ripening the ventilation may be increased, and the flavour will be much improved by full exposure to the sun. Many of the fruits on large pot trees cannot have this, but judicious stopping, thinning, and tying will help them, as Figs ripened in a close moist house are insipid. Figs under glass have two enemies—viz., red spider and brown scale. Red spider does not make much progress under good syringing, but when atmospheric moisture is reduced it increases rapidly, and on this account no effort should be spared to keep the foliage quite clean up to the ripening time. Brown scale also spreads rapidly over the young shoots, and extends to the leaves and fruit. Spare no pains to prevent this by the timely use of an insecticide, carefully using it with a brush or sponge upon the first appearance of the pest. Supplies of water at the roots are needed through all stages, and favourable opportunities for washing the trees may often be found through the ripening season by gathering all the ripe fruit at one time. For private use Figs should be ripe when taken from the trees, but for market purposes they must be gathered before they are fully ripe. The temperature should be 60° to 65° at night, with a little air, and 80° to 85° by day. Top ventilation must be given at 70°, and increased at 80°, with plenty of moisture rising from water applied to the mulching.

*Succession Houses.*—Permanently planted trees in borders inside will now need large quantities of water through the mulching. Syringe twice a day. Let the night temperature range from 55° to 60°, 70° to 75° by day, with gleams of sun, and 80° from sun heat, ventilating from 70°, and fully at 75°, but with an advancing temperature to 80° or 85°, closing at 80°, and sufficiently early to cause the temperature to rise 5°.

*Late Houses.*—Trees in these and wall cases must now be tied in and syringed on fine days, but sufficiently early to allow the trees becoming dry before night. In low cold localities unfavourable to the culture of Figs on walls, excellent crops may be grown under glass, but cold houses are not the best to insure annual success, there should be some provision for keeping out frost in the spring and ripening the wood in the autumn. Fires are unnecessary through the winter, and possibly injurious, as the trees may be unfasted in the autumn, tied in bundles, and protected with dry straw or bracken, and with dryness at the roots they will have a safe and complete season of rest.

PEACHES AND NECTARINES.—*Earliest House.*—The stoning process with Alexander and Waterloo (the two best very early Peaches) will soon be completed, and may be given a temperature of 70° to 75° by artificial means, but as this attenuates the wood if continued through the night, the temperature should be allowed to fall 5° through the night, and the temperature from sun heat may be kept through the day at 80° to 85°, ventilating by the top at 75°, and opening the front at 80°, so as to insure a circulation. Admit a little air constantly. Close the house at 80°, and sufficiently early to allow of an advance to 85° or 90°, the trees being well syringed and a good atmospheric moisture secured, which will insure the fruit swelling to a large size, but the foliage and fruit must become fairly dry before night, and clear rain water must be used, as spring water is liable to leave a stain upon the fruit. Remove the leaves over or in front of the fruit, and turn it up to the light by thin laths placed across the trellis, as it adds greatly to the appearance of the fruit when it is well and evenly coloured from the apex, besides making all the difference between high and poor flavoured fruit. Syringing should cease when the fruit commences ripening, but a genial condition of the atmosphere must be maintained for the benefit of the foliage by damping available surfaces twice a day and keeping the mulching thoroughly moist. Grow the very early varieties in a house by themselves, as they precede Hales' Early and A Bec by nearly a month, and Royal George by six weeks. If they are grown with the last-named, then the night temperature must not be more than 60° to 65°, and 70° to 75° by day with gleams of sun, and 5° to 10° advance on bright days until the stoning is completed, in another fortnight or three weeks, if the trees were started in December to ripen Hales' Early by the end of May. The prolonged cold weather has retarded forcing considerably, and when the stoning is completed they will bear a considerable advance in temperature with safety. Pay particular attention to syringing the trees, using clear soft water twice a day, and see that every part of the foliage and old wood is thoroughly washed. Keep the roots well mulched and supplied with weak tepid liquid manure. Regulate the flow of the sap by stopping all gross shoots before they have time to draw the supplies from the weakest parts of the trees. Allow leading shoots, particularly of young trees, to extend over uncovered parts of the trellis, and pinch out the points when the fruit begins to take the last swelling, at the same time turning aside any leaves that are likely to shade or otherwise interfere with the colouring or ripening.

*Second House.*—The trees in the house started early in January will have the fruit in a forward state, the disbudding completed, and the shoots that are to succeed those now fruiting have been heeled in. Allow plenty of room in the ties, and do not keep them very closely tied down for some time longer. Allow no more growths to remain than are necessary for next year's fruiting or for the extension of the trees. Stop gross growths or remove them, as it is highly important the sap be equally distributed, and an equality of vigour maintained through the branches of each tree. Pinch laterals at the first joint, and shoots retained to attract the sap to the fruit should only be allowed moderate extension, stopping them in the first instance at three or four joints of growth. Endeavour to provide an equal distribution of foliage that will



shade and protect the strong wood from the direct rays of the sun as the season advances. Avoid overcrowding, not allowing more shoots than can have full exposure to light and air. Ventilate freely but carefully, so as to avoid cold currents of air and sudden depressions of temperature. As the fruits will be swelling fast thin it if too thick, as with the trees in good health the fruit is more likely to stone well than when they are over-burdened, besides taking from the size of those that remain for the crop at the final thinning after stoning. Water the inside border copiously, and keep them well mulched with short well-worked horse dung.

*Third House.*—Trees started early in February should be examined frequently for dishudding, and as this is best done gradually the strongest parts of the trees should be first commenced with, being careful to preserve a shoot at the base of the current year's bearing shoots, and to leave no more on the extensions than will be required for furnishing the trees with bearing wood at 15 to 18 inches apart, and all the others on these may be pinched in closely to form spurs. A shoot on a level with or above the fruit must be retained on each bearing shoot and be pinched at the third joint. As the fruit is swelling freely remove those worst placed, and leave only a few more than will be required for the crop, one fruit to every square foot of trellis covered by the trees being ample. Syringe early on fine mornings, give a little air shortly afterwards, gradually increase it, and close with a rise from sun heat about 3 P.M.

*Fourth House.*—Trees started early in March will be out of bloom, and should be fumigated if there is any trace of aphides on two or three consecutive evenings. Syringe morning and early afternoon, and see that the inside borders do not lack moisture. Proceed with disbudding gradually, and rub off all small and badly placed fruit as soon as the most prominent show signs of taking the lead. Ventilate freely on all favourable occasions, and close early with a view to husbanding the sun heat.

*Late Houses.*—The trees in these are unusually backward, but this is none the worse, as the blossoms are usually stronger and set quicker than when brought forward by mild weather in the early part of the year. Ventilate freely until the blossoms begin expanding, but keep them safe from frost. When the anthers show turn on the heat in the morning so as to raise the temperature to 50°, and keep it at that with a gentle circulation of air, turning off the heat early in the afternoon so as to allow of the pipes cooling before night, and the temperature falling to its night minimum of 40° to 45°, which is quite safe, and ought to be secured after the blossoms expand, with a little air to prevent the deposition of moisture through the night on the flowers. Artificial impregnation should be resorted to either by shaking the trees, or by dusting the flowers with Pampas plume, or camel's-hair brush, but the best aids to a good set are proper borders full of active roots, kept so by constant attention to lifting, root-pruning, and the addition of fresh calcareous food with rich surface dressings.

#### PLANT HOUSES.

*Azaleas.*—As these plants cease flowering they should be pushed into growth at once by placing them in a temperature of 55° to 60° by night, with rise of about 10° from sun heat by day. Directly the roots are active pot the plants if they need more root room. Those that do not need repotting may have during the season two or three applications of artificial manure applied to the surface with advantage. Shade must be provided for a few hours during the hottest part of the day, and the atmosphere must be kept moderately moist. All plants required for late flowering should be in some structure with a northern aspect, and must be kept as cool as possible. They come forward rapidly at this season of the year in the houses exposed to the sun. In such houses ventilation must be provided day and night, whenever the weather is favourable, and heavy shade, applied during the day.

*Epacris.*—Except the latest these will have flowered, and should be cut back without delay and introduced into a temperature of about 50° to 55°. If kept moderately close and syringed twice daily they will soon break again in growth. The earliest flowering plants will have made 2 inches of growth, and will be ready for repotting if they require more root room. In potting the roots should not be disturbed further than the removal of the drainage from the base. The soil used should be pressed firmly into the pots and the plants watered afterwards with great care. If they are kept close, slightly shaded from the sun in a moderately moist atmosphere, they will be rooting in the new soil in about a fortnight. When they reach this stage they should be gradually hardened to cool treatment or their shoots will draw up weakly. Care must be taken that the plants are not checked.

*Camellias.*—As these cease flowering start them into growth by keeping them in a close moist atmosphere where the temperature at night can be maintained at about 55°. The house at which they are grown should be lightly shaded for a few hours daily during bright sunshine. Syringe the plants liberally, and throw plenty of water about the paths and stages of the house. As soon as growth is visible repotting may be done. Camellias do well in a mixture of fibry loam, one-seventh of decayed manure and a liberal dash of coarse sand, or they may be successfully grown in equal proportions of loam and peat. Provide liberal drainage, for these plants when in active growth require abundance of water, in fact they must never suffer by an insufficient supply in any stage of growth. Carefully remove the old drainage and any loose soil into which the roots have not entered. Pot firmly, but do not bury the collar of the plant below the surface of the soil. Plants in tubs or large pots, that it is not necessary to repot, may have the surface soil removed and then top-dressed with fibry loam and one-third of manure. A little artificial manure applied to the surface of the soil about once every three weeks will prove advantageous to these plants, or they may be given weak

liquid manure every time they need water. If the plants are infested with scale syringe them before the growth is advanced with petroleum and water, one ounce of the former to one gallon of the latter. This is an operation for two persons, the one to syringe into the pail, while the other distributes it upon the plants. Shade the plants from the sun for a few days afterwards.

#### THE FLOWER GARDEN AND PLEASURE GROUND.

*Shrubberies.*—A busy time has arrived, much work in all directions now requiring to be done before it is too late. Hollies, Conifers generally, Box, Phillyreas, Aucubas, and various other evergreens may yet be safely transplanted, care being taken in every instance to preserve as much soil about the roots as can be retained without unduly increasing the weight. Unless the soil is very loose no great difficulty need be experienced in securing a good ball of earth about the roots if sufficient time is allowed to do the work properly. The start should be made at a good distance from the stem of the tree, the trench being cut slightly deeper than the principal roots. This renders the gradual undermining, as well as the preservation of many of the roots, a comparatively easy matter, the tree being eventually well balanced on a short stout plant harrow, or a legless hand barrow, and on this transferred to its new site. No attempt should be made to drag out a tree or shrub, neither should they be cramped in small holes with nothing but poor soil to root in. The new sites should be of good width and depth, and a liberal addition of leaf soil or other good light compost be well mixed with the ordinary soil. Either common peat or leaf soil must be freely added to the ordinary soil where Rhododendrons and Belgian Azaleas are to be planted, or in most cases failure is certain. Cutting evergreen hedges and hanks of Laurels should now be completed, and this is also a good time to cut down tall and unsightly Laurels, Laurustinuses, Yews, Tree Box, Hollies, Portugal Laurels, Lilacs, Rhododendrons, and other trees and shrubs, most of which will soon break afresh from the old stems, and in time grow into handsome trees. Use the saw for all stout wood, the edges of the cuts being neatly rounded with a knife. Jagged wounds do not heal so surely, especially if they hold water.

*Climbers.*—Ivies are improved by being shorn closely to the wall, as they soon form fresh bright green leaves, and are much less liable to become detached from the walls. Where it has reached the water-shoots or eaves of the roof, unless it receives rather severe trimming it may soon become a nuisance. In such cases cut it clean away from the wall for at least a yard from the top. Evergreen Magnolias require little or no pruning, but unless the principal branches are secured to the walls, and the smaller branches tied to these, they are liable to be much damaged by winds. Virginian Creepers, notably Ampelopsis Veitchii, require but little assistance, but it is advisable to cut away all loose growths, unless these are leading shoots, in which case they should be fastened to the wall or woodwork. All loose growth on Passion-flowers may be cut back to the principal branches, the flowers being produced on the young growths resulting. Wistarias also must be spurred back, only a few thinly disposed main branches being kept properly fastened to the walls, and plenty of bloom should thus be secured. Cut back Jasminum nudiflorum and Forsythia viridissima rather closely after they cease flowering, while the common white Jessamine ought to be spurred in closely now. Pyracanthas require little pruning, but neither these nor Pyrus japonica should be allowed to extend far from the wall. Cut back flowering Loniceras freely, and the golden-leaved Lonicera should also be prevented from becoming bushy and unsightly, a free use of the knife or shears greatly improving its appearance later on. Clematis and Roses were alluded to on page 240.

*Lawns.*—Since the introduction of mowing machines there has been less need for the use of the roller, but the late frosts will have loosened the soil rather more than usual, and a good rolling will serve to fix the roots of some of the best grasses. If there are many wormcasts or moss abounds a bush harrow should first be freely used, or on small lawns a sharp-toothed iron rake may be substituted. Where it is considered desirable to improve the quality of the sward a thin top-dressing of good compost, consisting, say, of good sifted loamy soil, to every twenty bushels of which has been added one hushel each of lime, wood ashes, and soot. This if well raked or harrowed into the surface will soon become incorporated with the old soil, and will quickly effect a change for the better. Where the grass is very thin it is advisable to prick up the surface with garden forks, next giving a good top-dressing of the compost mentioned prior to sowing a suitable mixture of lawn grass seeds. These should be lightly raked in, and if the soil does not pick up badly a good rolling should follow. Levelling and turf-laying may still be proceeded with, and it is not yet too late to drain lawns or tennis grounds when these are too damp and mossy. April is also a good month for sowing grass seeds to form a new lawn, as during showery weather the seeds germinate in a few days, and consequently are not so long exposed to the attacks of small birds. In all cases the ground should be prepared as much as possible during rather dry weather, this admitting of the work being done well. The ground must be made firm, or inequalities will soon become apparent. The greater the depth of soil the more need for extra heavy ramming. The principal seedsmen supply mixtures of seeds to suit all soils and positions, and if birds are troublesome the seed may be sown thinly in drills 2 inches apart and well covered. The turf soon meets.

*Herbaceous Plants.*—Now that the bulbous-rooted plants are showing above the surface the herbaceous borders may safely be overhauled. Such strong growers as Phloxes, Asters, Pyrethrums, Potentillas, Japanese Anemones, Irises, Delphiniums, Spiræas, Hemerocallis, Geums, Thiotomas, Hellebores, and Aquilegias are frequently much improved by being lifted, freely divided with plunging forks, and replanted in fresh well-enriched



soil. Unless this is done many of them soon throw up too many growths, and the bloom is much inferior accordingly. Besides, they are great exhausters of the ground, and during hot dry weather especially, present an unhealthy appearance if at all neglected. Early-flowering *Chrysanthemums* are becoming very popular, and they may be largely planted in the herbaceous border. Slugs are rather too fond of the young shoots, but where strong old plants have escaped, these may be freely divided and replanted. We are obliged to winter a few stock plants in frames, and from these we obtain abundance of cuttings, which are struck in boxes in a close frame, stopped once, and planted out early in April where they are to bloom. Some of the best are Mrs. Cullingford, *Précocité*, *La Petite Marie*, *Lyon*, *St. Mary*, *Frederick Marronet*, *Madame Piccol*, *Little Bob*, *Virginia*, *Fiberta*, *Scarlet Gem*, *Madame Desgrange*, and *Mons. E. Pynaert Van Geert*.

## THE BEE-KEEPER.

### INITIATORY INSTRUCTIONS.—No. 2.

WHEN a Stewarton hive is at first stocked with bees, and intended for profit, the swarm should be of sufficient strength to be able to fill two body boxes in about eight days if the weather is favourable. If the bees have swarmed six weeks before the expected honey glut, although the swarm is small, will by that time have made considerable progress if it has been fed a little immediately after being hived. Whenever the two body boxes are filled a super may be placed on; but at this time first swarms are liable to start royal cells and prepare for swarming. To prevent this a third box should be put beneath for a day or two, or until the bees begin to make comb in it, known by looking in at one or both of the windows provided in these hives. When this is seen to be the case the box should be removed and a super put on, unless the one employed beneath was a super, then simply take it out from beneath and place it above. Such a super is a capital inducement for the bees to continue work. If it has been a body box, then lay it aside where it will be safe and ready to do service for some other hive, or it may be the one it has been underneath already.

I used to make my supers with doorways, so that they might be interchangeable. When the supers have no doorway it will be necessary to raise it with fillets of wood, forming a doorway when one piece is kept out. When supers are so used care must be taken not to let them remain too long, else the combs would be discoloured. Of old ekes or "raises" varying from 2 to 3 inches were used for this purpose, as well as for putting underneath the hive during winter to encourage a circulation of air and insure dryness. The ventilating floors obviate these, and are a great improvement. Some of these ekes were used with bars and some without. The objection to the latter was the bees built right down their combs, and when they required removing the combs had to be cut—a rather disagreeable duty to perform, and annoyance to the bees when they were allowed to remain flush with edge of hive. Bees always leave a half-inch space or more between the bottom of their combs and floorboard, and their desire to do this should not be frustrated. The hive that would yield the greatest amount of honey with the least amount of toil for the bees, and the one best adapted to their nature, and by far the best for wintering, would be the hive made of ekes or raises without bars, and the same dimensions as Stewarton. Such a hive, however, would not do for carrying or moving about, and would be very impracticable when depriving the bees of surplus honey.

The best time for adding a second swarm of bees to a Stewarton hive is immediately before the honey glut, and if possible at the time described above for putting on the first super. There are various ways of joining swarms. Success depends entirely on having both lots of bees fully gorged with honey, and when in this state the quicker it is done the better. The way I generally perform the operation is, when I have the swarm secured it is placed near the one it has to be joined to whenever all the bees are settled and come to it. I either get assistance from someone to hold up the first swarm for me, or I place it on a tressle or bottomless stool of a good height; then having some very thin honey and water in readiness (sugar is apt to clog the bees), I take a syringe with a fine rose and spray the bees as well as I possibly can in that position, because to invert a hive with newly made combs would simply be courting destruction. After that one has been operated on I carefully invert the other with bees only and spray them well with the sweetened water; then, quick as possible, with a sudden bump knock all the bees on to the floorboard of the other, on which a few pieces of wood have been laid to prevent crushing the bees when the other has been placed over them, which should be done instantly, and better if the operation has been performed on the ground in front of its permanent stand, so that the bees now heavy will be able to creep into the hive. Many of the bees of the first swarm will have been abroad when operations

were commenced, will now be flying about in a distracted state, but they will be readily subdued and in a fit state for joining peaceably. As a rule when bees are swarming they are filled with honey, and so will all others be that are working in other hives, and might be joined in perfect safety, but this is not always the case, so it is better to use the precautions of spraying with diluted honey. Time means honey with bees, as it means money with man, so if bees can be joined when newly swarmed instead of waiting till night more honey will be gathered; therefore, I advise immediate joining. When bees are left to join themselves by having one lot placed over the other time is lost, and if the upper portion has combs there is a danger of their repelling those below.

When a second good lot of bees has been successfully joined to another good one place two supers on at once, and in a day or two the third body box should be added, and if one can be had full of comb all the better, if not fill with comb foundation. This third box has the effect of encouraging breeding, keeping the queen from the supers, and where the queen is young from swarming, as well as having plenty of empty cells to allow the bees to store as much as possible when the glut is at its height, which seldom lasts long. We may well judge what the future weather will be from that in past years. Dry weather often sets in after a long continuance of wet, when the thermometer registers 32° or a little more, or even less. On the same day after it may rise to 70°, and the bees will appear as if they were seized with madness from their alacrity and helter-skelter out and in the hive. People will begin to ask how long this fine weather will last. Bee-keepers will be very anxious it should do so until the full harvest is reaped, and prophets will fix it at so many days or weeks. Do not mind what any of them say, but watch and weigh your hives, and you will find the income decrease at the end of the third day, and should it continue dry the change will recur every third day until again white clouds skim the horizon, or it may be a small one obscuring the sun when he sinks. The next day the sky may be overcast and the air oppressive, honey plentiful, bees so loaded that they fall short of the hive with a sort of a drowsy and monotonous hum, and at intervals they return in crowds to their hives. When these signs are seen be sure the end of the honey glut is near. I have mentioned these things so as to impress the bee-keeper with the necessity of studying the weather in conjunction with bee-keeping and its study. Bees are capital barometers, and where a journal of the doings of the bees and the weather is kept it materially assists the bee-keeper as well as the farmer as to what work should be performed.

The foregoing is what may be considered the most likely work to be performed, but circumstances may alter the whole proceedings, and after all the young bee-keeper may be unable to carry out the work as advised. Using his own judgment with the advice given may enable him to overcome difficulties. The weather is the main factor. Without favourable weather bees will not thrive. Under these circumstances feed until the weather changes, but never count on more than a week at a time, nor on more than three weeks during the season; and if at any time the three-weeks fine weather continues at a spell be thankful, but always have your hives in good order and things in readiness for fine weather come when it may. Believe that the bees have resources that man has not, and that if they have only room given in time they will collect and store more honey in a perfect state when let alone than when annoyed by man and his devices, which are often of a kind to thwart Nature. Learn to judge for yourselves; always buy the best article, and if ever it comes to be sold it will realise its full value, which an inferior one will not do. Use the microscope for amusement and study. When you have a feeder of the right sort and properly made a lens placed on the top of the glass will show to great advantage the parts of the living bee, and if of the yellow sort a glimpse of their internal parts may be had. A drop of condensed water from their perspiration is a good microscope when viewing the bees through the glass it is suspended on. Turn to the supers, view the bees through the window, and you will see them storing the honey direct from the fields, proving the fallacy of those who say it is first stored underneath and again methodically carried aloft. If you have been attentive readers of modern bee literature think how absurd are some people's teachings when they say the honey must first be stored underneath to be carried aloft during the night. Yet they recommend oblong hives, which precludes its possibility owing to the few frames they employ. They disparage the use of the Stewarton hive which is so well adapted for performing the work according to their own views. Another thing greatly recommended by some is to supply one hive with brood and honey from one or more others, then the contents taken from that one hive is put down as a *bonâ fide* gathering by one hive. Let every hive perform its own duty except in doubling swarms, which it is more profitable to do when there is honey to gather than at the end of the season to preserve alive bungled and otherwise mismanaged stocks. Bees are not worth keeping unless every hive can gather a



surplus, and this they will do if kept in large hives and have anything like favourable weather during the honey season.

Still another thing you must guard against, also taught by some—namely, when the bees are about taking to the supers do not remove part of their combs leaving scarcely half enough for the internal economy of the hive, forcing the bees into the supers, thereby cutting short any chance of a large yield. A case of “killing the goose for the golden egg.” An example in point concerning two clever bee-keepers. It was a bad year with little signs of improvement at the beginning of August. The one hired the other's bees from that time onwards at so much for the super only, all in the body of the hive was to remain for the benefit of the bees. When the hirer of the bees got possession of them he removed all the combs containing honey to about the one-half of what the hive contained in full, in short to six frames of large size, the bees were fed a little to encourage breeding, and were crowded out. Supers were added which the bees took to at once, and the Heather which was in the immediate vicinity was bursting into bloom, yielded honey plentifully, but for a few days only. The supers on these hives were filled, but on no others; these were at once taken off and empty ones substituted, resulting in drawing off the brood through the impoverished state of the hives, and at the end of the season when the extracted combs were returned there were but few bees to take advantage of them, and the season was too far advanced for the bees to better their condition by breeding, while the small sum received for hire was insufficient to purchase bees to make them as good as they should have been.

Moral, always keep your hives strong in bees, and the more empty comb they have during a honey glut, though it be of short duration, the better. I will at another time return to the subject, and give instructions to beginners, hoping the foregoing will help to keep in the right path those who are willing to be led by—A LANARKSHIRE BEE-KEEPER.

#### EARLY SWARMING.

YOUR readers may be interested in the following account of a swarm which came from a straw skep in this neighbourhood a few days ago. It took place about ten days ago, on one of the warm days which we in this neighbourhood had immediately after the frost broke up. The hive was light. The occupants of three hives had been joined together last autumn. Seeing the bees were very busy, the owner was watching them, when suddenly the queen came out. He caught her, and held her in his hand, while he asked a friend who was with him to get an empty skep. He was about to put the queen into this skep, when she flew away, and he expected to see no more of her; but in two or three hours the swarm was found 300 yards off on an old earthen bank, or dyke as we call them. It was duly hived, but was returned to its old home. What, however, struck the man as peculiar was that when the queen escaped from the hive he saw nothing in the shape of a swarm following her, and the remaining bees seemed to go on just as they had done before gathering bee bread, and he could not see any reduction in their numbers. The swarm was about the size of a cocoa-nut.—A BEE-KEEPER IN DUMFRIESHIRE.

#### TRADE CATALOGUES RECEIVED.

Viccars, Collyer, & Co., Leicester.—*Catalogue of Seeds and Specialties.*  
Jacob W. Manning, Reading Nursery, Reading, Mass., U.S.A.—*Catalogue of Fruit and Ornamental Trees, Shrubs, and Herbaceous Plants.*  
Charles Turner, Royal Nurseries, Slough.—*General Spring Catalogue, 1886.*  
William Paul, Waltham Cross, Herts.—*Catalogue of New Roses, &c.*



\* \* All correspondence should be directed either to “THE EDITOR” or to “THE PUBLISHER.” Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Royal Botanic Gardens (*Old Gardener*).—If you write to W. Sowerby, Esq., the Secretary, he will inform you of the manner in which Fellows are elected, these alone, we believe having regular admission to the Gardens.

Mrs. Pearson Grape (*J. F. H.*).—This variety was raised by Mr. Pearson at Chilwell from Black Alicante crossed with Ferdinand de Lesseps, and was awarded a first-class certificate by the Royal Horticultural Society in 1874.

White Chrysanthemum for Market (*D.*).—The following varieties are extensively grown for the sale of their blooms:—Madame Desgrange, early, followed by Elaine, Lady Selborne, Mrs. G. Rundle, Mdle. Lacroix, White Princess of Teck, Meg Merrilies, and Miss Marechaux, these affording a supply from September to the end of the year under good management. We are unable to answer your other question.

Lapageria Sporting (*G. H.*).—We see no reason why the sport you describe should not be fixed by pegging down the branch in turfy peat and sand, and rooting it as a layer. We are not able to say how far your variety is distinct from others without seeing a flower.

White Flowers for Wreaths (*T. A.*).—The following are amongst the best and most generally used plants for supplying flowers for wreaths:—White Azaleas, Camellias, Roses, Carnations, Pinks, Chrysanthemums, Lily of the Valley, Spiræa japonica, Roman and Dutch Hyacinths, Tulips, Epacris, Begonias, Callas, Bouvardias, Gardenias, Eucharis, Stephanotis, Paper White Narcissus, Rhodanthe maculata alba, Ammobium alatum grandiflorum, White Double Pelargoniums, Lapageria alba, Achilleas, Gladiolus The Bride, Guelder Roses, Lilacs, Chinese Asters, Lilliums, Freesia refracta alba, and Hellebores. If you do not know the best of the Azaleas and such plants and write to us again, we shall be pleased to help you.

Wanted Vine Roots (*Phylloxera*).—We regret to inform you that there is no doubt as to the presence of the phylloxera on the Vine roots you have sent. This insect passes through various stages, those now present being in what is termed the nymph form, and will speedily develop if permitted to do so. You may if you like saturate the border with ammoniacal liquor from gasworks, half-diluted. This proved effectual in a garden at Eaton Hall; or you may prefer to adopt a more radical method of extirpating the pest. The leaves sent are perfectly clean.

Beetles in Vinery (*J. M.*).—Your house is infested with the Vine weevil *Curculio Betuleti*. It is seldom we hear of this pest being found in such great numbers, as you appear to have caught over a thousand during three evenings. We know of no easy means of extirpating the pest, which is very destructive and feeds at night. You had better continue your practice of searching for and catching the weevils, and the house and Vines must undergo a radical cleansing in the winter. You may try the effect of the hellebore and petroleum mixture, as recommended to another correspondent, and we shall be glad to know if it proves of any value in your case.

Grafting Weeping Ash (*J. H.*).—You may graft your young Ash trees with weeping varieties at once. If the stocks are moderately strong at the top place a scion on both sides. The scion should be put on with the growth buds upwards and not downwards, for it is natural for the growths to weep without the adoption of such artificial means as the reversal of the scions. The scions should be from 2 to 3 inches in length, half or little more of that length being cut in a slanting direction with a sharp knife, a similar piece should be removed from the stock, and the two cut portions made to fit exactly. This done, and made secure, a little clay or grafting wax should be well rubbed into the tying material used, and then the whole covered with sufficient to exclude air. If clay is used a good percentage of cow manure should be incorporated with it to prevent it cracking by the influence of drying winds.

Pruning Orange Trees (*M. R. D.*).—We should not hesitate to prune the trees now to any desired extent, but the exact extent to shorten the branches can only be determined by the condition of the trees. After pruning they should be syringed twice or thrice a day to excite the production of fresh growths in preference to keeping the roots in a very wet state. If these are healthy your shoots will push from the old stems in a house in which a genial atmosphere is maintained. You may cut down the Shaddock to the strong growth on the lower part of the stem, or shorten the upper branches according as it may be thought desirable. A definite opinion cannot be formed in a case of this kind without inspecting the tree, and you had better confer with a good practical gardener on the spot. We suspect the authors of the evil are liable to damages, but it is not always easy to prove allegations of the nature indicated.

Grass Seeds for Embankment (*Cranfordian*).—For so small a plot of ground it is not practicable to apportion the quantities of the different varieties of Grass seeds that would be suitable for the purpose intended. The mixture should consist of such kinds as *Cynosurus cristatus*, *Festuca duriuscula*, *F. rubra*, *F. tenuifolia*, *Poa nemoralis sempervirens*, *Trifolium minus*, and *Lotus corniculatus*, with *Lolium perenne tenue* to shelter the finer Grasses until they became established, and so insure a quicker and better lawn. We should procure 3 lbs. of the finest mixture of lawn grass seeds—i.e., finest Grasses and Clovers, from a respectable seedsman, and having the ground in fine tilth sow about the second or third week in this month (April) on a calm day evenly, raking over lightly after sowing, and passing a roller over the ground, or otherwise making it even and embedding the seed in the soil. It is better if a time be chosen for sowing when there is an early prospect of rain.

Caterpillars in Vinery—Hellebore Petroleum Mixture (*S. Carlisle*).—The specimens shall be examined, all we can do at present being to suggest a remedy that we have found quite effectual in the case of the Gooseberry caterpillar and many other garden pests. We put 2 ozs. (a small wineglassful) of petroleum, 2 ozs. of soft soap, 1 oz. of washing soda, and 2 ozs. of hellebore powder into a two-gallon stone bottle, and pour in one-gallon of boiling rain water over them; shake violently, let it remain till cool, then strain through a cloth. This applied with a syringe destroys all caterpillars it touches and does not injure the trees nor stain the foliage. In the case of very tender plants, or of leaves covered with fine hairs, it might be prudent to try half the quantity of petroleum, but more than that.



named does no harm to smooth leaves. We advise its use during the evening, soon enough for the Vines and plants to get dry before nightfall, as the action of the sun on the wet foliage may cause injury. Still as much depends on the effective preparation of the mixture, you had better try it on one or two plants and parts of a Vine, noting its effect before syringing the whole of the Vines and plants.

**Lengthening Lawn Tennis Ground (Merchant).**—The lower part of the ground will no doubt consist of good soil, and that would be best removed and placed handy for covering any rubbish you may bring in to raise the ground. You may fill up with cinders or any other description of rubbish until you get within 2 feet 6 inches or 3 feet of the intended surface, and that should be good soil for insuring a good growth of grass, and a similar thickness should be present on the face of the embankment for the satisfactory growth of the shrubs. We do not consider Rhododendrons suitable for a steep slope. Laurels would be better, and, pegged down, would have a neat appearance, besides helping to keep the bank up. Even with common Laurels pegged down you will not be able to have so steep a slope as if it were turf-d or covered with Ivy, but the best form of slope is that having a base double that of the height. For instance, if you raise the ground 2 or 3 yards, the width of the base of the slope should be 4 or 6 yards respectively. This is very much better in every respect than a steeper slope, indeed it is as steep as it ought to be for planting with shrubs. The mode of levelling the ground is right—i.e., level it with pegs to the extent required from the present ground to which it is to be a continuation. In putting in the materials they should be well trodden down or rammed so as to prevent their settling. If you have the ground asphalted or cemented cinders would be far the best material, ramming them well down. At the end, instead of a slope you could have a retaining wall, but a slope planted with common Laurel would be the most pleasing. If you have a retaining wall it should incline inwards about 1 foot in 9 or 10 feet of height. Drainage will not be necessary if you use rubble, and certainly not if it be cemented. Asphalt is not suitable, as the smell of tar is not pleasant for a long time after making.

**Destroying Ants (Liverpool).**—If the ants have their nests in the open ground where they can be got at readily, a dry time should be selected, hollow out the nest so as to form a cavity, and pour into it a solution of Fir tree oil insecticide at the rate of a pint to a gallon of water at a temperature of 100°, or if there are no plant roots it may be applied at any temperature between that and boiling. The ammoniacal liquor from the gasworks is also useful. It may be applied where there are plants growing diluted with six times the quantity of water. Guano sprinkled over their nests and haunts will drive them away. If the ants have their nests in plant houses or where the above cannot be applied, the best plan we know is to get some pieces of sponge, the coarser the better, and dip them whilst squeezed in the fingers in a vessel containing honey or treacle, withdrawing the pressure the honey or treacle will be absorbed into the interior of the sponge. Place these as baits on pieces of slate or plates, which will attract the ants, and when a good number have entered the pieces of sponge they may be thrown into a pail of boiling water. Wash the sponges clean in warm water, dry them, and repeat the bait. They may also be poisoned by mixing honey and arsenic together, but it must be thoroughly mixed or the ants will take the honey and leave the arsenic. It must be used with great care. Half-picked bones are excellent baits. Petroleum is a good ant eradicator. A lump of camphor the size of a Filbert dissolved in a quart of water and this applied, has been found effectual without injuring the roots of plants. We give a choice of remedies, so that if one fails or is inapplicable in any particular case, another may be tried.

**Cyclamens (J. H. Y.).**—Many gardeners fail in growing these plants satisfactorily, not from want of skill so much as by lack of suitable conveniences. The finest examples are produced in low heated span-roofed houses wholly devoted to these plants, the pots standing on a close moist base, not dry open stages, and a genial atmosphere maintained, the night temperature being about 60°. They must have all the light possible, yet shade from bright sun, as if this extracts the moisture from the leaves more rapidly than it is supplied by the roots the plants cannot be satisfactory. They succeed well in frames in the summer with good attention as regards watering, syringing, shading, and ventilating. Mr. Hugh Ranger, an admirable grower of Cyclamens, read a paper on their culture at Liverpool. This was published in the Journal on page 541, December 18th, 1884, and as the number is out of print we cite the following:—"Cyclamen persicum and its varieties may be had in flower from the beginning of September until the end of March, or even the end of April. In order to grow them successfully very careful treatment is required. The seed should be sown in September in shallow seed pans, and the pans placed on a shelf close to the glass in a warm greenhouse or cool stove, where the temperature will be about 60°, shaded from the sun, and the soil kept constantly moist. The seed will germinate in about six weeks, and as soon as the first leaf is developed the seedlings should be placed singly in 2-inch pots, and still kept in the same temperature close up to the light, but shaded from the sun. They may remain in these pots until the beginning of February, when they should be shifted into 3½-inch pots, and still kept in a similar temperature, and sprinkled occasionally in the mornings of bright days; and as the season advances the young plants will make rapid growth, which must be encouraged, and great care must be taken to avoid giving them a check in any way. The plants will do in these pots till about the beginning of June, when they may be placed into warm pits for ten days or a fortnight, and then transferred into 5 or 5½-inch pots. After potting they should be kept close, syringed, or sprinkled with a fine-rose watering can, and shaded for a time until the roots have taken to the new soil, when air may be admitted freely. They should still be shaded from the sun, syringed twice a day, and the house closed at night. The larger size pot will be a good one to flower them in, but if extra large plants are required the best and largest of them may be potted again about the end of July or the beginning of August, this time into 7-inch or 8-inch pots. By the end of October the plants in the smaller pots will be 10 inches across, and those in the larger pots 15 inches across, carrying from 100 to 200 flowers each, provided the plants have done well. Thus by following the course I have indicated, Cyclamen persicum can be grown 15 inches in diameter in thirteen months from the time of sowing seed. To flower them well they should be placed in a light airy house with the temperature from 50° to 55°. The soil I have

found to suit Cyclamens best is a mixture of three parts good fibrous loam, two parts good leaf mould—the latter not too much decayed—and a sprinkling of silver sand, with the addition of a little Clay's Fertiliser, say a 5½-inch potful to a harrowload of the compost." The plants must be kept scrupulously free from insects, or the best of soil will not avail to produce good flowering plants.

**Notes on Bee Management (A. S.).**—We are obliged by your letter. You will find something of what you require in this issue of the Journal, and more plain notes will follow. If you desire specific information on any particular point, and state your requirements from time to time, your letters shall have attention. That before us now appears to embody general suggestions pertaining to the whole routine of bee-keeping, and the various points indicated are not likely to be overlooked.

#### COVENT GARDEN MARKET.—APRIL 7TH.

PRICES remain the same. Trade as last week.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	½ sieve	2 0 to 3 6	Peaches .. .. .	per doz.	0 0 to 0 0
" Canadian ..	barrel	12 0 to 20 0	Pears, kitchen ..	dozen	1 0 to 1 6
Cobs, Kent ..	per 100 lbs.	27 6 to 30 0	" dessert .. ..	dozen	0 0 to 0 0
Figs .. .. .	dozen	0 0 to 0 0	Pine Apples English ..	lb.	1 0 to 1 6
Grapes .. .. .	lb.	2 6 to 7 0	Plums .. .. .	½ sieve	0 0 to 0 0
Lemons .. .. .	case	8 0 to 10 0	St. Michael Pines ..	each	2 0 to 6 0
Melon .. .. .	each	0 0 to 0 0	Strawberries .. ..	per oz.	0 6 to 0 9
Oranges .. .. .	100	4 0 to 6 0			

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Articokes .. ..	dozen	1 0 to 0 0	Lettuce .. .. .	dozen	1 0 to 1 6
Asparagus .. ..	bundle	2 0 to 8 0	Mushrooms .. ..	punnet	0 6 to 1 0
Beans, Kidney ..	lb.	2 0 to 3 0	Mustard and Cress ..	punnet	0 2 to 0 0
Beet, Red .. ..	dozen	1 0 to 2 0	Onions .. .. .	bunch	0 3 to 0 0
Broccoli .. ..	bundle	0 9 to 1 0	Parsley .. .. .	dozen bunches	2 0 to 3 0
Brussels Sprouts ..	½ sieve	6 0 to 8 0	Parsnips .. .. .	dozen	1 0 to 2 0
Cabbage .. .. .	dozen	3 0 to 4 0	Potatoes .. .. .	cwt.	4 0 to 5 0
Capsicums .. ..	100	1 6 to 2 0	" Kidney .. .. .	cwt.	4 0 to 5 0
Carrots .. .. .	bunch	0 3 to 0 4	Rhubarb .. .. .	bundle	0 2 to 0 0
Cauliflowers .. ..	dozen	2 0 to 3 0	Salsify .. .. .	bundle	1 0 to 0 6
Celery .. .. .	bundle	1 6 to 2 0	Scorzonera .. ..	bundle	1 6 to 0 0
Coleworts .. ..	doz. bunches	2 0 to 4 0	Seakale .. .. .	per basket	2 0 to 3 6
Cucumbers .. ..	each	0 3 to 0 8	Shallots .. .. .	lb.	0 3 to 0 0
Endive .. .. .	dozen	1 0 to 2 0	Spinach .. .. .	bushel	6 0 to 8 0
Heros .. .. .	bunch	0 2 to 0 0	Tomatoes .. .. .	lb.	1 0 to 3 4
Leeks .. .. .	bunch	0 3 to 0 4	Turnips .. .. .	bunch	0 4 to 0 0

##### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0 to 18 0	Ficus elastica ..	each	1 6 to 7 0
Arbor vitæ (golden)	dozen	0 0 to 0 0	Ferns, in variety ..	dozen	4 0 to 18 0
" (common) ..	dozen	6 0 to 12 0	Foliage Plants, var.	each	2 0 to 10 0
Arum Lilies .. ..	dozen	9 0 to 18 0	Genistas .. .. .	dozen	10 0 to 12 0
Azaleas .. .. .	dozen	24 0 to 42 0	Hyacinths .. .. .	dozen	6 0 to 9 0
Begonias .. .. .	dozen	0 0 to 0 0	Lilies of the Valley, in		
Bouvardia .. ..	dozen	0 0 to 0 0	clumps or pots, per doz.	15	0 to 30 0
Cineraria .. ..	dozen	10 0 to 12 0	Marguerite Daisy ..	dozen	8 0 to 12 0
Cyclamen .. .. .	dozen	12 0 to 24 0	Myrtles .. .. .	dozen	6 0 to 12 0
Cyperus .. .. .	dozen	4 0 to 12 0	Palms, in var. ..	each	2 6 to 21 0
Dracæna terminalis,	dozen	30 0 to 60 0	Pelargoniums, scarlet,	doz.	6 0 to 9 0
" viridis .. ..	dozen	12 0 to 24 0	Primulas, single,	dozen	4 0 to 6 0
Erica, various ..	dozen	12 0 to 24 0	Solanum .. .. .	dozen	8 0 to 12 0
Eucalyptus, in var.	dozen	6 0 to 18 0	Spiræa .. .. .	dozen	12 0 to 18 0
Evergreens, in var.	dozen	6 0 to 24 0	Tulips .. .. .	12 pots	6 0 to 9 0

##### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. ..	12 bunches	0 0 to 0 0	Lilium longiflorum, 12 blms.	0 0 to 0 0	
Acacia (Mimosa), Fr., per	bunch	1 0 to 1 6	Lily of the Valley, 12 sprays	0 9 to 1 6	
Arum Lilies .. ..	12 blooms	4 0 to 6 0	Marguerites .. ..	12 bunches	6 0 to 8 0
Azaleas .. .. .	12 sprays	0 6 to 1 0	Mignonette .. ..	12 bunches	3 0 to 6 0
Bouvardias .. ..	per bunch	0 0 to 0 0	Pelargoniums, per 12 trusses	1 0 to 1 6	
Camellias .. ..	12 blooms	2 0 to 5 0	" scarlet, 12 trusses	0 9 to 1 0	
Carnations .. ..	12 blooms	1 0 to 3 0	Poinsettia .. ..	12 blooms	0 0 to 0 0
Chrysanthemums 12 blooms	0 0 to 0 0		Roses (indoor), per dozen	3 0 to 9 0	
" 12 bunches	0 0 to 0 0		" Tea .. .. .	dozen	2 0 to 4 6
Cyclamen .. ..	doz. blooms	0 4 to 0 9	" red, French ..	dozen	2 0 to 4 0
Epiphyllum .. ..	doz. blooms	0 0 to 0 0	Spiræa .. .. .	12 sprays	1 0 to 0 0
Eucharis .. .. .	per dozen	4 0 to 8 0	Tropæolum .. ..	12 bunches	2 0 to 3 0
Gardenias .. ..	12 blooms	6 0 to 18 0	Tuberose .. .. .	12 blooms	3 0 to 0 0
Hellebore .. ..	doz. blooms	0 0 to 0 0	Tulips .. .. .	dozen blooms	0 9 to 1 0
Hyacinths, Roman, 12 sprays	1 0 to 1 6		Violets .. .. .	12 bunches	1 0 to 1 6
Lapageria, white, 12 blooms	0 0 to 0 0		" Czar, Fr., ..	bunch	1 6 to 2 0
Lapageria, red .. 12 blooms	1 0 to 2 0		" Parme, French, per	bunch	4 0 to 6 0



#### CLOVER AND GRASS.

RED Clover sown annually with a corn crop is a part of the old four-course shift to which many a farmer still clings with characteristic persistence, and there is undoubtedly



strong reason for doing so. Good clean seed sown in April seldom fails to afford an abundant plant, and in the following year the crop is turned to account in several ways. It may be used entirely for grazing; the first growth may be cut green for forage or mown for hay just as the plants come into flower, and the second growth may be fed off by sheep in folds, or be kept for seed. In a favourable season the saving of the second crop for seed answers very well, a high price often being realised for the seed: but in such a cold wet autumn as we had last year much of the seed was spoilt, and sheep-folding answered best. Regarded from the safe aspect of general utility solely as a forage crop, Red Clover alone is not a desirable crop, and it is fast being replaced by a mixture of Clover and Grasses, as affording more certain results and a heavier bulk per acre. In such mixtures Cocksfoot, the best of all our perennial Grasses, now takes a leading place with the best of the Rye Grasses, and we certainly have reason to prefer it to the ordinary mixture of Clover and Rye Grass. Mr. Ashton, the winner of the first prize in the farm competition of the Royal Agricultural Society last year, goes a step farther than this, and has two-year layers, for which he uses twelve kinds of seed at the following rate per acre:—Half bushel each of Pacey's Perennial Rye Grass and Italian Rye Grass; 3 lbs. each of Red Clover, Cow Grass, and Alsike Clover; 2 lbs. each of Timothy, Cocksfoot, Crested Dogtail, and Rib Grass; 1½ lb. each of Trefoil and Giant White Clover, and 1 lb. of Sweet Vernal. The Judges mention in their report that: "In this Mr. Ashton's practice differs widely from that of many of his neighbours, who sow a mixture of Red Clover and Italian Rye Grass only. Nothing, however, could be better than the well-mixed hay produced on this farm in almost every case." The bulk obtained per acre must be remarkable, for they say farther: "In April the first cutting to sell green was just commenced, and in July it was ready to cut again, and will be cut a third time this summer, so we were informed. Following his usual practice, Mr. Ashton top-dressed this piece, after the removal of the first cutting, with sawdust-manure soaked with liquid manure, which was pumped on to it in the midden from the tank into which the buildings are drained."

We mention this part of Mr. Ashton's practice because it is in keeping with the sort of high farming we advocate and practise, and we may usefully follow the report of his practice and its results a little farther. We are told of a piece of first year's seeds being cut for grass, which was a heavy crop of the best quality. The earliest cut from the first year's seeds is secured by sowing a few acres each year early in the autumn, after Tares or early Potatoes. In the first year three green cuttings are usually taken off, and in the second year the seeds are twice cut for hay. "The first cut of grass should yield about 12, the second 7 or 8, and the third 9 or 10 tons per acre; and the second year the first hay crop will probably not be less in a favourable season than 2 to 2½ tons, and the second crop from 1½ to 2 tons." We here quote the exact words of the report in order to authenticate this extraordinary statement, which we do not in any way venture to question, for we know in ordinary practice it is quite customary to sell the first cut of green forage at 1s. a perch or £8 an acre, and under a spirited system of high farming we may fairly expect a first crop of mixed Grasses and Clover of 12 tons an acre, worth £1 per ton.

Eastern county farmers have recently been invited to consider the advantages of permanent pastures, but a tenant farmer might turn his attention more advantageously to alternate husbandry, and while avoiding the annual sowing of Red Clover follow the happy mean of two or three-year layers of mixed Grasses and Clovers. He would thus avoid the double expense involved in laying down land to permanent pasture, as well as that which one-year layers involve, and he would enjoy a quick and profitable return upon his outlay. No doubt farmers near large towns have exceptional advantages in the sale of such crops, but no really clever

farmer could be at a loss what to do with them wherever his farm might be.

The existing prejudice against hay made from strong-growing Grasses on the score of coarseness is taken advantage of by dealers in hay. It ought now to be known generally that chemical examination and careful observation of their effect on stock show that the Grasses which are most productive are also the most nutritious. Cocksfoot, which is the most robust of all the permanent Grasses, is pronounced by our highest authority, Mr. Faunce de Laune, by far the most valuable of all Grasses, because it grows in all soils; it produces the greatest amount of keep; it is the most nutritious Grass, and seems to grow faster and stronger in extremes of weather, either wet or dry, than any other Grass. There is, moreover, hardly any stage of its growth in which stock do not eat it greedily. We have at the present time a rick of hay in use consisting entirely of Cocksfoot and other coarse Grasses, and we have every reason to be satisfied with its quality and its effect upon the stock.

#### WORK ON THE HOME FARM.

On every hand may be seen the almost magical effects of genial spring weather upon vegetation. Winter corn has lost its russet hue. Grass, too, grows apace, and we have been able to take ewes and lambs out of the Turnip folds on to the pastures for a few hours daily. Eagerly do they eat the young grass, and we are glad to say it has failed to produce any signs of scouring; but then the ewes have plenty of chaff, cake, Oats, and bran in the troughs, and the lambs have as much mixed lamb food as they can eat. Printed instructions were sent us with the first consignment of this food, as to how much weight of it we were to allow each lamb daily. While ignoring this well-meant advice, we told the shepherd only to use a small quantity at first, and to give more as the lambs appeared to require it. The condition of the lambs is highly satisfactory, and we now think we shall be able to send some early draughts of fat lambs to market. Our bacon pigs sold well, exceeding our average of £4 apiece; some of them ranging as high as £5 5s. On the whole our venture in winter pigs has answered, and our inferior corn has been profitably turned into pork. Early litters of spring porkers suffered from the effects of cold weather so much that many were lost. We shall, however, muster enough for our purpose, and we always find six or eight pigs to a sow more profitable than double the number. Winter Tares sown late in November could hardly be expected to answer, and our advice to an amateur farmer who complained of the failure of his efforts to obtain a crop in that manner was to sow spring Tares at once. We never had but one failure of winter Tares, and that was owing to having sown them in September: they were too forward and perished. The nitrate of soda sown upon the Rye was quickly dissolved by rain, and its beneficial effects are already visible, the growth being quick and strong. It is nevertheless backward, and glad shall we be when we are able to begin folding the ewes and lambs upon it. A moderate supply of roots and backward spring puts a strain upon farmers' resources, evidence of which may be seen in the guise of the large numbers of hoggets in poor condition now forced upon the market. Our preparations for root crops are in a forward condition, and the Mangold crop will this spring be sown soon after the spring corn. On heavy land the work of sowing has been much hindered by rain, and while one of our bailiffs has been able to point to corn-sowing finished, another had not got through more than half of it at the same time. By the exercise of a little patience and perseverance difficulties of this kind will soon be overcome, and we may reasonably hope for early seed-germination and quick growth now.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.


Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1886.  March & April.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sunday .....	28	29.908	50.3	49.0	E.	45.1	58.3	48.9	76.4	46.8	0.072
Monday .....	29	29.646	47.8	45.6	S.	46.2	54.4	41.3	83.4	35.7	0.068
Tuesday .....	30	30.088	45.8	41.2	S.W.	44.0	49.7	36.6	76.1	31.8	0.135
Wednesday ...	31	29.603	49.3	45.2	S.W.	43.7	55.6	45.4	103.3	44.2	0.011
Thursday .....	1	30.143	47.0	42.7	S.W.	43.4	55.6	38.2	99.8	32.7	—
Friday .....	2	29.819	55.0	50.2	S.E.	43.4	53.3	45.2	84.2	37.8	0.202
Saturday ....	3	29.881	48.2	44.8	W.	44.8	57.5	45.4	92.6	44.6	—
		29.881	49.1	45.5		44.4	55.8	43.0	88.0	39.1	0.458

#### REMARKS.

28th.—Dull and showery.  
29th.—Wet early, dull till 10.30 A.M., afterwards sunshine and showers, with high wind; clear at night.  
30th.—Fine and bright till 11 A.M., heavy S.W. gale with showers all day and night.  
31st.—Generally bright, with showers; gale unabated.  
1st.—Fine and bright.  
2nd.—Bright early, afterwards dull and showery.  
3rd.—Rain early, but generally fine and bright.  
A mild week, with only one trace of frost; hot sun on sever days.—G. J. SYMONS.





## COMING EVENTS

15	TH	Royal Society at 4.50 p.m. Linnean Society at 8 p.m.
16	F	
17	S	Royal Botanic Society at 3.45 p.m.
18	SUN	PALM SUNDAY
19	M	
20	TU	National Auricula Society Show and Primula Conference, S. Kensington.
21	W	

### PROFITABLE GARDENING.

**T**HERE are hundreds of practical gardeners out of employment, and many thousands of dwellers in towns very badly supplied with vegetables, fruit, and common flowers, and those who have the welfare of both classes at heart may well set the former to work to supply the latter. Not a few gardeners have invested their "all" in florists' businesses and small nurseries, only to find that in most districts there were already too many. Others have hired or built several forcing and plant houses, with perhaps a little land attached, with the idea of making a fortune with the profits attending the sale of fruit and cut flowers in the London markets; but these again, unless they are particularly keen and practical, are doomed to disappointment and failure. There are by far too many labouring to supply the principal markets, notably Covent Garden, and the sooner innumerable private gardeners as well as others beginning on their account realise this fact the better for them and those whom they serve. It is the small towns that as a rule are badly supplied, and it is among the middle and working classes that customers are to be found.

I do not advise any gardener at present in a fairly good situation to exchange this certainty for what might prove an uncertainty, but were I out of a situation I would unhesitatingly commence on my own account, and most probably in this neighbourhood, where there are already several well-established market growers. As a rule the men that at present monopolise the business of small towns are greatly inferior in ability and general experience to the majority of the very men now struggling on, charitably employed it may be by various nurserymen, and waiting for head places that seem farther off than ever, and yet the former prosper simply from the fact that they are plodding and were content to make a small beginning. Now that the craze for building has subsided with no prospect of any immediate revival, much less difficulty is experienced in obtaining land comparatively near to a town than many seem to imagine, especially if one would be contented with a moderately long lease. Then, seeing how easily money can be borrowed, it is decidedly a mistake to wait till such times as enough can be scraped together for a big commencement. There is no time like the present for commencing, everything, including uncultivated land, manual and horse labour, being plentiful and cheap, while houses can be built at a surprisingly cheap rate, and when a revival does take place the market gardeners will be the first to feel the reaction in the shape of a greater demand and better prices.

It is a well-known fact that in spite of the poorness of the prices obtained by the senders to large market towns the inhabitants are rarely supplied at a proportionately cheap rate, or otherwise there would be a much greater demand, both growers and consumers being benefited accordingly, but sooner or later I hope these rapacious middlemen will come to grief. Even greengrocers and fruiterers in small towns

have to be watched very closely, and many of these must have everything for about half its value, even if there is little or no risk of its being unsold. If it is not possible for a beginner to open a shop for the sale of fruit, flowers, and vegetables, then the next best thing is to arrange for the regular supply of all that may be needed by a certain number of hotel-keepers, tradespeople, and other well-to-do people who have no garden of their own. The smaller greengrocers will usually take all that may remain to be sold. This is no imaginary scheme, as I have been repeatedly asked to supply townspeople, and I am acquainted with several private gardeners who have long been obliged to sell surplus produce, and these men now have their regular customers. In one instance three private families are supplied with everything but Potatoes from one garden, and the plan works well all round.

It is unwise to depend solely on a vegetable and fruit garden for gaining a livelihood now-a-days, as what is wanted is something of everything and not too much of a few things only. There are customers for all the surplus produce except those high-priced of private gardens, as well as that grown under glass and in the open by market growers. At the outset I intended to point out what I find pays best for growing, but as I have occupied much space in expressing my views on this important subject of how best to utilise the talents of many good yet unemployed men, I must at present confine my remarks upon the profitable cropping of the open garden, leaving choice flowers and fruit for another occasion.

As before stated, high prices are seldom realised, and the aim should be to crop the ground as closely as may safely be done with the kinds of vegetables, fruit, and flowers that may be most in demand. Supposing there is a warm end or corner, it is here that the most scheming is required. There should be good breadths of Ashleaf Potatoes, Kidney Beans, notably Ne Plus Ultra and Canadian Wonder; Lettuces, preferably Paris White Cos; Nantes Horn Carrots, with Radishes everywhere. The latter are sometimes very profitable, as they can be sown over the Potatoes among the Carrots in advance of the Beans and various other crops. Wood's Frame and French Breakfast are the two best sorts, and hundreds of bunches at 1d. per bunch or thereabouts may be quickly and profitably grown. Lettuces again may be grown by hundreds or thousands (we have already put out two thousand) on the ridges between the Celery rows, on young Strawberry beds, and other positions, and if only 1s. per dozen is obtained they pay well and quickly. The Brown Cos, though one of the best sorts for a private place, is unsuitable for marketing. Neither do the buyers care for the Cabbage varieties unless there is no choice in the matter. Early Turnips are profitable, and an east border as well as spaces between fruit bushes may well be sown with Early Milan and Snowball, the latter in the greatest quantities. During the summer and early autumn months there is much less demand for Turnips, but for the winter supply it is advisable to sow a good breadth of ground, just cleared of early and second early Potatoes, with Veitch's Red Globe Turnip. Nantes Horn Carrot is always profitable, so many bunches being drawn from a comparatively small piece of light ground. It is also good for the winter supply. Onions, very small in bunches and fully grown, usually pay well, and so also does Beet. The former ought already to have been sown, but Dell's Crimson Beet, the best for all purposes, may be sown any time in April or early in May. Celery we cannot grow enough of, and really good, not necessarily large, samples will, I believe, sell anywhere. There is no demand for early Celery, November, December, and January being the best months for it, and at 2d. per stick, or even less, it pays very well. We prefer Williams' Matchless and Leicester Red, good substitutes being Sulham Prize and Carter's Incomparable Crimson.

Very early and late Peas do not pay; but a few rows of



William I., followed by Telegraph or Telephone, the two latter being staked, usually prove remunerative. William I. may be profitably grown on open ground without stakes, as well as Pride of the Market, Dr. McLean, and Veitch's Perfection. Runner Beans are always in demand, and when they are to be had French or Dwarf Kidney Beans will not sell. They may be trained up stakes any height from 3 feet to 12 feet, or may be grown without stakes, in which case all running growth must be kept closely pinched off. Our rows of staked Beans are disposed 6 feet apart, and the stopped rows 3 feet apart. Between the former we grow two rows of Ash-leaf Potatoes and one row between the latter. Brussels Sprouts are always profitable, and a good breadth of the Aigburth should be established early. Broccoli must be classed as doubtful, though on firm good ground, in succession to early Peas and Strawberries, they are usually hardy and good. Savoys and Kales may be grown as successional crops, being planted between Potatoes. Asparagus, Rhubarb, Seakale, and Mushrooms are always saleable and profitable. There is only a small demand for Globe and Jerusalem Artichokes, and Parsnips do not always find purchasers; but well-grown Horseradish is bought readily, and the same may be said of early and late Parsley. Early Cabbages only, and Veitch's Autumn Giant Cauliflowers prove remunerative hereabouts, the former in succession to Onions and the latter between or after early Potatoes.—I. M., *Somerset*.

### POLYANTHUSES FOR CULTURE IN POTS.

At the outset I must explain that I do not mean the florists' gold laced varieties, but those strains of mottled, self-coloured, and white varieties which have been advancing with such rapid strides during the past ten years. You printed a short note on these which I sent you about twelve months ago, and I then detailed the method of growing them which has given the finest plants. However, in drawing attention to the place which these beautiful flowers may be made to fill as decorative greenhouse plants throughout the early spring months, it may not be amiss to give a résumé of the cultural details.

In the first place seed should be sown at once, or if deferred much later it will be better to sow in boxes and raise the plants in a cool house. In preparing the seed bed it should be made rich with some light root-producing material, of which spent Mushroom bed refuse is a very good example. This is not dug into the soil, but is spread over the surface of the beds after the ground has been dug, and is then mixed with the surface soil to the depth of 2 or 3 inches. Treated in this manner the seedlings have something which they can take to from the first. If good plants are expected—and unless they are strong they are of no use for pot culture—the seedlings must be transplanted before they have made much growth into a specially prepared bed. I find it useful to have a piece of ground set apart for the growth of various plants. This ground has a hard bottom of coal ashes, and in preparing a suitable bed for Polyanthuses a portion of this cinder-bottomed ground is chosen of a suitable size. On the cinders a layer 3 inches deep of spent Mushroom manure is firmly pressed down, and on the manure a surfacing of loam and manure, in the proportion of two of the former to one of the latter. This is also made quite firm. The seedlings are on the first suitable day after the bed has been made up—a drizzly damp day is best—pricked out in rows 9 inches apart, and about as much apart in the rows.

After attention consists in giving water as it may be required and keeping them free from weeds. In October the strongest plants are lifted and placed in pots, the precaution being taken ten days before the time of lifting to cut down each row and between the plants in the rows with a spade. When lifted the plants will have capital balls of active roots, and should be showing a number of trusses ready to throw up on the first exciting cause. If the plants can be kept in a cool light structure, and not allowed to be frozen, they will continue to progress slowly through the winter. A little heat does not hurt them if carefully managed; a very good guide to follow with this and kindred subjects being to take the average temperatures of the season they flower out of doors, and falling a few degrees to make up for the want of air which they more or less have to put up with when grown under glass.

When well grown these free-flowering strains of Polyanthus form quite a feature throughout the spring months, and well repay the care spent in bringing them on. I have found them very popular, and on the whole of much service. Primroses, though useful, I do not find to be so floriferous as Polyanthuses. At the same time they are well worth growing, the cultural details being the same for both plants.

It may be noted that seedling plants are better than sorts which have been selected, named, and propagated by division. However, as some of the named varieties are quite indispensable, and some seedlings may be so good as to be worthy of growing on in future years, it is necessary to treat these so that they keep in robust health. In our soil we have the greatest difficulty with these, and when kept in pots the plants are very apt to be neglected, so that we would advise a like treatment to be given these as already advised for seedlings. Double varieties require to be dealt with in the same manner.

A word of caution may be given as to purchasing named varieties. I have had both Primroses and Polyanthuses sent with names and only fit for the rubbish heap. Doubtless the vendors would think them worthy of naming, but until both plants are better known than they are at present new growers will do well for themselves to be sure of what they are buying before investing in many named varieties. A variety which it is almost impossible to obtain is the true double crimson. It is most difficult to keep, and in trying to obtain it I have found the best way to proceed in making a purchase was to ask for a bloom from the would-be seller, and in most cases the bloom forwarded has not been the true variety. Beside an inferior crimson, various shades of purple are sold for the old crimson. It is remarkable how many double sorts there are. I have met with two white double, several yellows, three shades of lilac, several purple shades, beside a few intermediate colours. Of Polyanthuses we have only two doubles, one almost black and the other an edged variety.—B.

### MELONS.

I HAVE read with interest the able articles upon Melons that have appeared recently in the Journal. I also have grown a few for the past two years in a simple manner, a brief description of which may interest some of your amateur readers.

Two years ago my employer was offered the use of a lean-to greenhouse, 24 feet by 10 feet, adjoining the garden here, but belonging to an unoccupied house. Not knowing how long it might be in our hands, I did not increase my permanent plants, but decided to grow a few Melons in summer, with Chrysanthemums, bedding plants, &c., in the winter. The house in question has very deep front lights (4 feet) resting upon a wall 18 inches high from the ground line. It is heated by four rows of 3-inch piping along the front, about 6 inches above which is a stage 18 inches wide, on a level with the wall plate; a path 3½ feet wide runs parallel, and a stage leaning to the back wall completes the house. On the front stage I grew the Melons, fixing boards 9 inches wide to keep in the soil, and a layer of leaves to prevent it falling through amongst the pipes. On the 12th of May I closed the house, putting in the soil to warm, and on the 13th put out the plants which I had grown on in a frame. For about ten days I employed the fire gently to give them a start, after which I discontinued it except on a few cold wet days. Air was admitted carefully, the house was closed early with a good syring (excepting when the plants were in flower) running the heat up to 100°, sometimes 110°. On several occasions at six o'clock in the morning the glass stood at 57°, but generally about 62°.

The plants grew vigorously, not making large leaves, but solid, and I was never troubled with either red spider or canker. I top-dressed them twice, and the depth of soil at finish was 8 inches. From eight plants I cut nineteen fruits weighing from 1½ lb. to 3¼ lbs. Hero of Bath and Hero of Lockinge produced my largest fruits, Earl of Beaconsfield the smallest, but one of which my employer pronounced the best he had ever tasted. The dates are from a diary of 1884. Last season I was a little later.—J. CORSON, *Down Ampney*.

I HAVE read with much interest the two excellent articles on Melons by Mr. Bardney (pages 206 and 245 of the Journal), particularly his reference to the disease called "rot." I agree with your correspondent in attributing low temperatures as the cause of this evil.

Several years ago the glass department over which I had then charge included the Melon pits, in one of which the plants were affected by this disease in a very striking manner. The Melons were planted in the usual way. The soil was ordinary loam, with a small addition of horse droppings, and was pressed quite firm. After planting, I received orders from my superior to guard against strong firing, to give abundance of air on all favourable occasions, to aim at a slow sturdy growth, as he said they were in the habit of growing too strongly and going off. Under this treatment—the weather being mild—they made rapid progress, but were still very soft. To prevent, as we thought, further grossness, the fire heat was reduced, and bottom heat dispensed with. A few days more and they were at the top of the trellis, being trained on the single-stem system. At this stage they appeared very healthy, which led some visitors to remark that they were the best they had ever seen. Had they favoured us with a visit about a week or ten days afterwards they would have beheld the sad spectacle of nearly all the plants they admired so much being carried to the rubbish heap, as in a few days the stems "melted away," turning quite soft from top to bottom, and consequently causing the collapse of the whole plant. Although we knew that over-grossness was the cause, we did not know how to prevent it in this particular house, as they did very well in other houses. Since then my experience has taught me that the cultural treatment adopted in the above case to prevent the disease was in reality the cause of it—too low a temperature and too much moisture.—D. B.



## CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 250.)

## CUTTING DOWN PLANTS.

THE system of cutting down Chrysanthemums to render them dwarf and more suitable for decorative purposes has much to recommend it, especially in preparing groups for conservatories or exhibition, as it is seldom that naturally grown plants can be arranged so that they can be readily seen. To obtain plants for this purpose strong cuttings should be struck at the same time and in the same manner as previously advised. Do not top the plants, but train them with one stem. As they are mainly used for grouping, and as they are generally stood closely together when in bloom, 9-inch pots will be large enough for the final shift. If possible the pots should be of one uniform size, therefore after the cuttings are



Fig. 50.

struck place them into 3½-inch pots, and then into those 5¼ inches in diameter, using similar soil to that recommended already, transferring the plants to cold frames as soon as they are ready.

About the 20th of May cutting down should commence with the late-flowering varieties, say for example *Boule d'Or*, *Meg Merrilies*, *Yellow Dragon*, *Grandiflorum*, *Princess Teck*, *Hero of Stoke Newington*, and *Cherub*; midseason varieties about the 1st of June; and the early-blooming varieties, such as *Elaine*, *Mrs. G. Rundle*, and *Prince Alfred*, should be cut down about the middle of June. None should be cut down later than this date if they are to be in bloom early in November. It is well to take into consideration the purpose for which the plants are required in determining the height at which they are to be cut. Dwarf-growing varieties best suited for front rows of groups may be cut down to within about 4 inches of the soil, the others to 6, 8, and 12 inches. As they do not break so freely from the old wood as from the young, plants of small-flowered varieties which are intended to have more branches each should not be cut so low as the larger-flowering varieties.

Great care must be exercised in watering the plants after they are cut down, as they do not require much water at the roots for some time. If they can have the protection of a cold frame so much the better, as they can then be protected from showery weather. Syringe the plants once a day to assist the shoots starting, and if the sun be very hot at this time a little shade in the middle of the day can be applied. As soon as the shoots are long enough to determine if they are perfect, disbud to the quantity required; three branches for most sorts is enough, except the small-flowering varieties which may have five or six. At this stage transfer the plants into the largest pots, and when rooting into the new soil remove them to their summer quarters, allowing them ample space,

as crowding quickly spoils their appearance, drawing them up weakly and ruining the foliage. Tie each branch to stakes separately to prevent their being broken or the leaves damaged by chafing during gales of wind, and as soon as the pots are filled with roots stimulants may be supplied.

The first buds produced on the shoots after cutting down should in nearly all cases be selected as best suited for producing large blooms. They will appear from the middle to the end of August, and it will be soon enough if some sorts show their buds the first week in September, such as the *Queen family*. Sometimes a bud will show the first week in August. This is too early. In this case rub it out and wait till the next one shows, which will be about the middle of September. When the buds are selected take off all growth shoots, which are freely produced at this stage. Commence housing the plants the 1st of October, starting with the late varieties, and have all under cover by the middle of the month. Place them as near to the glass as possible, giving sufficient space to each plant to prevent loss of the foliage. Fire heat will be needed occasionally in dull weather to prevent the blooms damping. Thin wires are useful to support the stems when the plants are required for exhibition grouping, as stakes of this kind are less seen than those made from laths or hazel stems. Another advantage gained by the wire supports over the wooden ones is that sometimes one flower does not come quite in the right place, whereas in this case the wire can be bent as desired.

The illustrations (figs. 50 and 51) show a cut-down plant and one bearing flowers, and will serve to render the preceding explanations more easily understood.—E. MOLYNEUX.

## MR. JOHN SMITH OF KEW.

As will be seen from a paragraph in "Notes and Gleanings," Mr. John Smith, who has been Curator of the Royal Gardens, Kew, for twenty-two years, has, owing to ill-health, resigned an appointment which he has held with much credit. The post is an exceedingly difficult one, requiring a wide practical knowledge together with many other attainments which very few possess; but all who are acquainted with Mr. Smith have had ample proofs that he performed his duties with the skill of an experienced gardener and the courtesy of a gentleman.

Mr. Smith was born in Roxburghshire, and commenced his gardening career in 1841 by being apprenticed to Mr. C. Pillans, gardener to the



Fig. 51.

Duke of Roxburgh, Floors Castle, Kelso. During the three years spent in this garden, which was then one of the most noted in Scotland for the skilful practice there displayed, he laid a good foundation for his after experience. At the end of that period Mr. Smith proceeded to Alnwick Castle Gardens, and he remained in the service of the Duke of Northumberland for twenty years. He worked at Alnwick Castle in a subordinate position until 1855, but the time so spent was most valuable in results, for by his assiduity and perseverance he gained the esteem of his noble employer, who assisted him in many ways. In the year named he went to Syon House Gardens to gain some knowledge of tropical fruit culture, returning to Alnwick in 1856, but was shortly afterwards appointed gardener on the Duke of Northumberland's estate, Werrington Park, Cornwall. Three years later—namely, in 1859—Mr. Ivison resigned the



management of the Syon House Gardens, and Mr. J. Smith succeeded him. In 1864 the curatorship of Kew became vacant, and the appointment was offered by Sir William Hooker to Mr. J. Smith, whose qualifications for the post were well known. Since then he has ably assisted the Directors in maintaining the character of our national garden, and we hope he will long enjoy the retirement he has so well earned.

### HYBRID ORCHIDS.

THE hybrid Orchids obtained within the past forty years constitute an important addition to the number of attractive cultivated forms, no less than 125 having been raised in that period, and the majority are distinguished by characters amply sufficient to command the attention of all who admire this variable family of plants, some like *Calanthe Veitchi* and *Cypripedium Sedeni* ranking amongst the most useful Orchids. The first recorded hybrid Orchid was one observed by M. Weddell on the Continent about 1841, which was described as possessing a combination of the characters of *Aceras anthropophora* and *Orchis militaris*, and was therefore regarded as a probable natural hybrid between those species. As Orchids were then coming much into favour, it is not surprising that some observant cultivators should have given, what proved a difficult matter—namely, a little attention to raising them from seed, and though several engaged in this, it appears that the principal success was attained in the Glasnevin Botanic Gardens, where from 1845 to 1850 numbers of plants were so raised. Dean Herbert also experimented in artificial hybridising amongst Orchids about the same time, but though he states that pods were secured from crossing an *Orchis* with pollen from an *Ophrys*, it does not seem that he succeeded in raising plants from the seed. He, however, mentions having seedling *Cattleyas*, *Bletias*, *Ophrys*, and *Hermionium*. The first substantial results of such experiments were reserved for Mr. Doinoy, who commenced hybridising in Messrs. Veitch and Sons' nursery at Exeter in 1853, and first obtained some seedling *Cattleyas*. Owing, however, to the quicker growth of some other seedlings which appeared subsequently, *Calanthe Domini* was the first to flower in October 1856, and was followed by *C. Veitchi* in 1859. About twenty others were selected from others which flowered in succeeding years, and were found sufficiently distinct to merit new names. Since then Mr. Seden has been remarkably successful in Messrs. J. Veitch and Sons' nursery at Chelsea, where large numbers of seedlings have been raised, and up to the present time over sixty handsome hybrids have been flowered and named. It is surprising that amateurs have done so little, for comparatively few have paid any attention to the matter. Amongst those, however, who have made some good additions to the list, must be named Sir Trevor Lawrence, Bart., M.P., Mr. R. Warner, Mr. J. C. Bowring, Mr. J. C. Cookson, Mr. W. Swan, M. Alfred Bleu, and Mr. Cross.

The following list contains all the hybrids concerning which any information could be obtained up to the present time, the seed-bearing parent is named first, and the pollen parent second, in all Mr. Seden's hybrids, and in other cases also where it could be ascertained.

#### MR. DOMINY'S HYBRIDS.

HYBRID.	PARENTS.
<i>Aërides hybridum</i> . . .	<i>A. affine</i> — <i>A. Fieldingi</i>
<i>Anætochilus Domini</i> . . .	<i>A. xanthophyllus</i> — <i>Goodyera discolor</i>
<i>Calanthe Domini</i> . . .	<i>C. Masuca</i> — <i>C. furecata</i>
<i>Veitchi</i> . . .	<i>vestita</i> — <i>Limatodes rosea</i>
<i>Cattleya Brahantiæ</i> . . .	<i>C. Loddigesi</i> — <i>Acklandiæ</i>
<i>Devoniensis</i> . . .	<i>crispa</i> — <i>guttata</i>
<i>Dominii</i> . . .	<i>maxima</i> — <i>amethystina</i>
<i>exoniensis</i> . . .	<i>Mossiæ</i> — <i>Lælia purpurata</i>
<i>Felix</i> . . .	<i>crispa</i> — <i>Regnelli</i>
<i>hybrida</i> . . .	<i>granulosa</i> — <i>Harrisoniæ</i>
<i>hybrida maculata</i> . . .	<i>guttata</i> — <i>intermedia</i>
<i>Manglesi</i> . . .	<i>Mossiæ</i> — <i>Loddigesi</i>
<i>Pilcheri</i> . . .	<i>crispa</i> — <i>Perrini</i>
<i>Pilcheri alba</i> . . .	<i>crispa</i> — <i>Perrini</i>
<i>quinquecolor</i> . . .	<i>Acklandiæ</i> — <i>Forbesi</i>
<i>Sidniana</i> . . .	<i>crispa</i> — <i>granulosa</i>
<i>Cypripedium Domini</i> . . .	<i>C. Pearcei</i> — <i>caudatum</i>
<i>Harrisianum</i> . . .	<i>barbatum</i> — <i>villosum</i>
<i>vexillarium</i> . . .	<i>barbatum</i> — <i>Fairrieanum</i>
<i>Dendrobium Domini</i> . . .	<i>D. nobile</i> — <i>moniliforme</i>
<i>Goodyera Veitchi</i> . . .	<i>Goodyera discolor</i> — <i>Anætochilus Veitchi</i>
<i>Lælia Veitchiana</i> . . .	<i>Cattleya labiata</i> — <i>C. crispa</i>
<i>Phaius irroratus</i> . . .	<i>P. grandifolius</i> — <i>Calanthe vestita</i>

#### MR. SEDEN'S HYBRIDS.

<i>Calanthe hella</i> . . .	<i>C. Turneri</i> — <i>Veitchi</i>
<i>lentiginosa</i> . . .	<i>Limatodes labrosa</i> — <i>Calanthe Veitchi</i>
<i>Sedeni</i> . . .	<i>Veitchi</i> — <i>vestita</i>
<i>Cattleya Amesiana</i> . . .	<i>C. crispa</i> — <i>maxima</i>
<i>Chamberlaini</i> . . .	<i>Leopoldi</i> — <i>C. Dowiana</i>
<i>Fausta</i> . . .	<i>Loddigesi</i> — <i>exoniensis</i>
<i>Marstersoniæ</i> . . .	<i>Loddigesi</i> — <i>labiata</i>
<i>Mardelli</i> . . .	<i>speciosissima</i> — <i>Devoniensis</i>
<i>porphyrophlebia</i> . . .	<i>intermedia</i> — <i>superba</i>
<i>triphthalma</i> . . .	<i>superba</i> — <i>exoniensis</i>
<i>suavior</i> . . .	<i>Mendeli</i> — <i>intermedia</i>
<i>Veitchiana</i> . . .	<i>crispa</i> — <i>labiata</i>
<i>Chysis Chelsoni</i> . . .	<i>C. bractescens</i> — <i>aurea</i>
<i>Sedeni</i> . . .	<i>Limminghi</i> — <i>bractescens</i>

#### HYBRID.

<i>Cypripedium albo-purpureum</i> . . .	
<i>calanthum</i> . . .	
<i>calurum</i> . . .	
<i>cardinale</i> . . .	
<i>euryandrum</i> . . .	
<i>Germinyanum</i> . . .	
<i>grande</i> . . .	
<i>Leeanum superbum</i> . . .	
<i>leucorrhodum</i> . . .	
<i>lucidum</i> . . .	
<i>macropterum</i> . . .	
<i>marmorophyllum</i> . . .	
<i>Marshallianum</i> . . .	
<i>microchilum</i> . . .	
<i>Morgania</i> . . .	
<i>nitens</i> . . .	
<i>oenanthum</i> . . .	
<i>superbum</i> . . .	
<i>porphyreum</i> . . .	
<i>porphyrochlamys</i> . . .	
<i>porphyrospilum</i> . . .	
<i>pycnopterum</i> . . .	
<i>Schroederæ</i> . . .	
<i>Sedeni</i> . . .	
<i>Sedeni</i> . . .	
<i>Sedeni candidulum</i> . . .	
<i>selligerum &amp; majus</i> . . .	
<i>superciliare</i> . . .	
<i>tessellatum</i> . . .	
<i>porphyreum</i> . . .	
<i>vernixium</i> . . .	
<i>Dendrobium endocharis</i> . . .	
<i>euosmum</i> . . .	
<i>micans</i> . . .	
<i>rhodostoma</i> . . .	
<i>splendidissimum</i> . . .	
<i>Lælia bella</i> . . .	
<i>callistoglossa</i> . . .	
<i>Canhamiana</i> . . .	
<i>flammea</i> . . .	
<i>Philbrickiana</i> . . .	
<i>Sedeni</i> . . .	
<i>Masdevallia Chelsoni</i> . . .	
<i>Gairiana</i> . . .	
<i>Phaius irroratus</i> . . .	
<i>pureus</i> . . .	
<i>Phalanopsis intermedia</i> . . .	
<i>Portei</i> . . .	
<i>Zygopetalum pentachromum</i> . . .	
<i>Sedeni</i> . . .	

#### PARENTS.

<i>C. Schlimi</i> — <i>Domini</i>	
<i>biflorum</i> — <i>Lowi</i>	
<i>longifolium</i> — <i>Sedeni</i>	
<i>Sedeni</i> — <i>Schlimi album</i>	
<i>barbatum</i> — <i>Stonei</i>	
<i>villosum</i> — <i>hirsutum</i>	
<i>Roezli</i> — <i>caudatum</i>	
<i>insigne Maulei</i> — <i>Spicerianum</i>	
<i>Roezli</i> — <i>Schlimi album</i>	
<i>villosum</i> — <i>Lowi</i>	
<i>Lowi</i> — <i>Veitchi</i>	
<i>Hookeræ</i> — <i>barbatum</i>	
<i>venustum pardinum</i> — <i>concolor</i>	
<i>niveum</i> — <i>Druryi</i>	
<i>Veitchi</i> — <i>Stonei</i>	
<i>villosum</i> — <i>insigne Manlei</i>	
<i>Harrisianum</i> — <i>insigne Maulei</i>	
<i>Harrisianum</i> — <i>insigne Maulei</i>	
<i>Roezli</i> — <i>Schlimi</i>	
<i>biflorum</i> — <i>hirsutissimum</i>	
<i>Lowi</i> — <i>Hookeræ</i>	
<i>venustum</i> — <i>Lowi</i>	
<i>caudatum</i> — <i>Sedeni</i>	
<i>Schlimi</i> — <i>longifolium</i>	
<i>longifolium</i> — <i>Schlimi</i>	
<i>Schlimi album</i> — <i>longifolium</i>	
<i>barbatum</i> — <i>lævigatum</i>	
<i>barbatum</i> — <i>Veitchi</i>	
<i>barbatum</i> — <i>concolor</i>	
<i>barbatum</i> — <i>concolor</i>	
<i>Argus</i> — <i>villosum</i>	
<i>D. japonicum</i> — <i>heterocarpum</i>	
<i>endocharis</i> — <i>nobile</i>	
<i>Wardianum</i> — <i>lituiflorum</i>	
<i>Huttoni</i> — <i>sanguinolentum</i>	
<i>aureum</i> — <i>nobile</i>	
<i>L. purpurata</i> — <i>Cattleya labiata</i>	
<i>purpurata</i> — <i>C. gigas</i>	
<i>Cattleya Mossiæ</i> — <i>L. purpurata</i>	
<i>L. cinnabarina</i> — <i>Pilcheri</i>	
<i>Cattleya Acklandiæ</i> — <i>L. elegans</i>	
<i>superba</i> — <i>L. Devoniensis</i>	
<i>M. amabilis</i> — <i>Veitchi</i>	
<i>Veitchi</i> — <i>Davisi</i>	
<i>P. grandifolius</i> — <i>Calanthe vestita</i>	
<i>P. amabilis</i> — <i>rosea</i>	
<i>Z. Mackayi</i> — <i>maxillare</i>	
<i>maxillare</i> — <i>Mackayi</i>	

#### OTHER RAISERS' HYBRIDS.

<i>Calanthe Alexanderi</i> . . .	<i>C. Veitchi</i> — <i>vestita rubro-oculata</i>
<i>Cooksoni</i> . . .	<i>Veitchi</i> — <i>vestita luteo-oculata</i>
<i>porphyrea</i> . . .	<i>Limatodes labrosa</i> — <i>C. vestita rubro-oculata</i>
<i>Sandhurstiana</i> . . .	<i>L. rosea</i> — <i>C. vestita rubro-oculata</i>
<i>Cattleya calummata</i> . . .	<i>C. intermedia</i> — <i>Acklandiæ</i>
<i>Mitcheli</i> . . .	<i>quadriflorus</i> — <i>guttata Leopoldi</i>
<i>veriflora</i> . . .	<i>labiata</i> — <i>Trianae</i>
<i>Cypripedium Arthurianum</i> . . .	<i>C. Fairrieanum</i> — <i>insigne</i>
<i>Ashburtoniæ</i> . . .	<i>insigne</i> — <i>barbatum</i>
<i>chloroneurum</i> . . .	not recorded
<i>conchiferum</i> . . .	<i>caricinum</i> — <i>Roezli</i>
<i>Crossianum</i> . . .	<i>venustum</i> — <i>insigne</i>
<i>gemmiferum</i> . . .	<i>Hookeræ</i> — <i>purpuratum</i>
<i>hybridum</i> . . .	<i>Stonei</i> — <i>barbatum</i>
<i>Laforcadei</i> . . .	<i>Chantini</i> — <i>barbatum</i>
<i>Leeanum</i> . . .	<i>Spicerianum</i> — <i>insigne punctatissimum</i>
<i>meirax</i> . . .	not recorded
<i>melanophthalmum</i> . . .	
<i>politum</i> . . .	<i>barbatum superbum</i> — <i>venustum</i>
<i>Sallieri</i> . . .	<i>villosum</i> — <i>insigne</i>
<i>Seedling No. 1</i> . . .	<i>javanicum</i> — <i>superhiens</i>
<i>stenophyllum</i> . . .	<i>Schlimi</i> — <i>caricinum</i>
<i>Swaniamm</i> . . .	<i>Dayanum</i> — <i>barbatum</i>
<i>Williamsianum</i> . . .	<i>villosum</i> — <i>Harrisianum</i> (?)
<i>Dendrobium Ainsworthi</i> . . .	<i>nobile</i> — <i>aureum</i>
<i>Leechianum</i> . . .	<i>nobile</i> — <i>aureum</i>
<i>Zygopetalum Clayi</i> . . .	<i>Z. crinitum</i> — <i>maxillare</i>

#### SUPPOSED NATURAL HYBRIDS.

<i>Anguloa dnbia</i> . . .	<i>A. uniflora</i> — <i>Clowesi</i>
<i>Cattleya Whitei</i> . . .	<i>C. labiata</i> — <i>Schilleriana</i>
<i>Cœloglossum Erdingeri</i> . . .	<i>C. viride</i> — <i>Orchis sambucina</i>
<i>Gymnadenia intermedia</i> . . .	<i>G. conopsea</i> — <i>odoratissima</i>
<i>Strampfi</i> . . .	<i>G. odoratissima</i> — <i>Cœloglossum albidum</i>
<i>Lælia Crawshayana</i> . . .	<i>L. alba</i> — <i>anceps</i>
<i>Dormanniana</i> . . .	<i>Cattleya bicolor</i> — <i>L. pumila</i>
<i>Leeana</i> . . .	<i>Cattleya marginata</i> (?)
<i>Nigritella brachystachya</i> . . .	<i>Gymnadenia sub-conopsea</i> — <i>N. nigra</i>
<i>Henfleri</i> . . .	or <i>N. nigra</i> — <i>N. suaveolens</i>
<i>megastachya</i> . . .	<i>G. super-conopsea</i> — <i>N. nigra</i> , or <i>G. conopsea</i>
	— <i>N. suaveolens</i>
<i>micrantha</i> . . .	<i>N. nigra</i> — <i>G. alba</i>
<i>suaveolens</i> . . .	<i>N. nigra</i> — <i>G. conopsea</i>



HYBRID.	PARENTS.
Odontoglossum Ander- sonianum . . .	O. crispum — gloriosum
aspersum . . .	Rossi — maculatum
baphicanthum . . .	crispum — odoratum
Coradinei . . .	triumphans — odoratum
Dennisoniæ . . .	crispum — luteo-purpureum
Edithiæ . . .	crispum — Andersonianum
elegans . . .	cirrhosum — cristatum
Galeottianum . . .	nebulosum — Cervantesi
hebraicum . . .	
Horsmanni . . .	Pescatorei — luteo-purpureum
Humeanum . . .	cordatum — Rossi
Leeanum . . .	
mulus . . .	luteo-purpureum
Murrellianum . . .	Pescatorei — navium
Pollettianum . . .	crispum — gloriosum
Ruckerianum . . .	crispum — Andersonianum
Schroderianum . . .	tripudians — Pescatorei
stellimicans . . .	Pescatorei — triumphans
Williamsianum . . .	grande — Schlipperianum
Orchis alata . . .	O. laxiflora — Morio
ambigua . . .	incarnata — maculata
Lorenziana . . .	mascula — pallens
Morio-papilionacea . . .	Morio — papilionacea
purpureo-militaris . . .	purpureo — militaris
Regeliana . . .	maculata — Gymnadenia odoratissima
Valesiaca . . .	O. globosa — G. conopsea
Phalenopsis Casta . . .	P. Schilleriana — amabilis
intermedia . . .	rosea — amabilis
leucorrhoda . . .	Schilleriana — amabilis
Sanderiana . . .	amabilis — Schilleriana
Valentini . . .	Cornu-Cervi — violacea
Veitchiana . . .	rosea — Schilleriana

—LEWIS CASTLE.

## ESTIMATES OF VEGETABLES.

**PARSNIPS.**—These form a profitable crop and do well in almost any soil, but best in that of a deep, moist, alluvial nature; in such the roots are clean and straight, the size being dependant on the ground and the distance accorded the plants. I give 18 inches from row to row, and about 9 inches distance in the row, and secure fine roots. Medium-sized roots are, however, most esteemed for private use, and the kind I find most esteemed is The Student, which has very handsome clean roots, fine quality, and rich flavour. I grew them last year on trenched ground after Peas, and had a crop bringing first-rate returns from the salesman. Under field culture, however, it does not attain sufficient size to please buyers, though for shallow soils it is far the best. Large Guernsey may differ from Hollow-crowned, but it is difficult to distinguish. Hollow-crowned Improved has large roots, the crop being heavy, and taken altogether is the best for general use.

**CARROTS.**—The value of an early crop is considerable, but to secure this warm soils and situations must be chosen. I had a considerable breadth of Early Nantes last year and got an excellent crop, the roots being of medium size, stump-shaped, and coming early to maturity. The colour is a bright red, and that means money. It is the very best of the Early Horn section, and is a selection from the Early Scarlet Horn—an excellent variety, very short small top, but sufficiently large for bunching. James' Intermediate Scarlet affords a capital succession, is of fine shape, and medium size, with fine quality. There are many forms of this best of keeping Carrots, but the most desirable is that with a bright scarlet colour, and strange as this may seem these have firmer, more solid, and sweeter flesh than the pale-coloured roots. These improved forms are all due to selection—seed-saving from the finest quality roots. Long Red Surrey is an excellent Carrot for deep soils, attaining to a large size, and good flavoured. Large Carrots, however, are not in much demand for private use, a medium-sized one being always more acceptable, such are obtained by sowing after a crop of early-lifted Potatoes, and the roots from an early July sowing keep much longer in spring than those obtained from spring sowing.

**BEET.**—The quality is everything in Beet, and this is in proportion to the colour, for the deeper the colour the more tender the flesh, and the higher the flavour, with freedom from woody or stringy matter, so characteristic of the pale-coloured Beets. For private use none surpasses Nutting's Dwarf Red, which is of medium size, red colour, fine quality, and sweet flavour, the top being small. Pine Apple Short-top is also excellent, but does not attain such evenness in growth or size as Nutting's. Dewar's Dwarf Red is of fine shape and good size, and the colour bright red. It is a very good Beet and attains a good size early, and as such is valuable for marketing. Cattell's Crimson attains to a large size, and is not by any means coarse, the colour being good. It is first-rate for market, but colour is

essential, and this it seems to be losing, and points to want of care in selecting seed stock. Black, which is credited with the prefix of its improvers in selection, is in every respect first-rate for market, large and handsome in shape, very dark in colour, and of high quality. This and Cattell's must not be sown early or the plants are liable to run to seed, but sown early in May very fine roots result. Egyptian Turnip-rooted is very useful as an early variety. Beet for late use keeps best buried in the soil on a north border, a protection of straw or litter free from horse droppings being placed on the surface.

**RADISHES.**—For frames there is none to surpass Wood's Early Frame in the long varieties, Scarlet Forcing and White Forcing Turnip, Early Rose Globe, and French Breakfast. They are all excellent, and very fine for early crops outdoors, except in the height of summer, and then if care be taken to water and sow frequently they are the best at that season for private use, where their mild flavour causes their being held in high esteem. Long Scarlet, Red, and White Turnip are the best for summer use, as they stand hot dry weather better than the others, being crisp and of a mild flavour when the early sorts are hot, hollow, and woody.

In Salsafy I do not know of more than one variety, but of Scorzonera there is a great advance in the Russian which is larger and not running to seed so much as the old sort.

**LEEKS.**—Musselburgh is without exception the best, and the giants and others are only selected stocks of this fine sort. Leeks afford fairly good returns, being sown in rows 15 to 18 inches asunder, and 6 inches asunder in the rows. This surpasses the trench, transplanting, and blanching system, for Leeks blanch themselves when properly grown.

**LETTUCE.**—Cabbage for spring use, Hardy White Dutch; summer use, Royal Albert; for frame, Commodore Nutt. Cos—spring and early summer, Bath or Brown Cos, Summer White Cos, of which there are many fine selections, all of the Paris White. Early Lettuces pay well, summer crops do not pay much carriage.

**ENDIVE.**—Batavian Improved Round-leaved and Green Curled Improved. These afford good returns if they can be had in well blanched large heads in winter and early spring, but the foreigners compete keenly with the home grower in early produce, and the shipping and railway companies seem to combine to help them all they can.

**TOMATOES.**—Whether grown under glass or outdoors large fruits with little rib or corrugation command the best prices. The best I have grown is Hackwood Park Prolific. Acme, Dedham Favourite, Hathaway's Excelsior, and Perfection have very fine fruits, all are good croppers and are all after the style of Stamfordian, and in what that differs from Excelsior is not easily observable. Earliness, however, is a consideration, and the corrugated sorts then come to the front, such being Conqueror, Orangefield Dwarf, and Trentham Early Fillbasket. They are harder than the smooth round sorts, and not so liable to split with wet as the round smooth varieties, therefore are better suited for outdoor culture. For the last purpose none surpasses the Large Red, seed being saved from the plants that have the best-shaped fruits, and tend to earliness and prolificacy in the plants.

**SPINACH.**—There is not much choice in this very highly esteemed vegetable, but one sort is worth the other two. How it originated it would be interesting to know, but it grows better and is hardier than the others, and does not bolt or run to seed nearly so quickly, and that means having Spinach in summer. I had it giving large thick dark green leaves this winter when the Prickly or Winter had its leaves parboiled, and it realised 6s. per bushel, when the other gave nothing. It is named Victoria, and well it deserves its name.—UTILITARIAN.

## THE PERILS OF MANURE.

It is the habit of some gardeners to have in an odd corner of their ground a manure heap, which, like certain columns of gleanings we meet with in periodicals, is more remarkable for the promiscuous character of its contents than for their excellence. Often it combines animal and vegetable refuse, earth turned out of flower pots containing fibrous roots, larger roots and stems of decaying vegetables, bulbs, dead leaves, dung, and a comprehensive et-cetera. This is sufficed to remain from autumn to spring; it is then spread upon the soil, perhaps dug in without much preparation or examination. Its condition, indeed, after the moisture of winter is rarely such as to allow of the process of sifting or division by chopping, and unfortunately this half-fermenting pasty substance is likely to be a fertile source of insect life during the ensuing season. I will only mention a part of the enemies of the garden that may possibly be lurking therein, frequently they are at such a stage in their growth that even if the manure be casually inspected they are not perceived.

There will be, for instance, the crustacean woodlice, hiding amid



its damp layers, accompanied probably by one or more varieties of the millipede. Dried leaves or fragments of bark have contributed their quota of carwigs, many small and in that stage when, as I believe, their food is of a mixed character, but still liable to develop until they are mischievous. The brownish bristly grub of the St. Mark's fly (*Ribis Marci*) is a common lurker in manure, and an especial foe to the roots of the Strawberry, but it also attacks many ornamental species in flower beds. That almost omnivorous weevil, *Otiorhynchus sulcatus*, which feeds nearly all the winter, generally finds enough in a manure heap to sustain its life, and completes the larval growth in spring upon whatever plants it can reach in borders. Roots of grass or Clover that may have got amongst the manure will add some wireworms, should they not be otherwise introduced. Another beetle grub that may be secreted in manure is that of the garden chafer or bracken clogs (*Phyllopertha horticola*), which follows the habits of the cockchafer, though fortunately less destructive. Of fly grubs many lie dormant in manure, such as that of the Cabbage fly, the Onion fly, and the Carrot fly, and occasionally, should it be dry, for these pests have no liking for damp, there may be found a winter party of some of the root-haunting aphides ready to propagate during the first mild weather of spring. The process of baking is not applicable to manure, but such a compound as described should be treated, ere using, with gaslime, then exposed to the air for awhile, or with common lime or salt; soapsuds added will kill many, but not all species.—ENTOMOLOGIST.

### CULTURE OF THE NEAPOLITAN VIOLET.

As our system of growing this lovely Violet is somewhat different from that which is generally pursued, we venture to give a brief outline of the method we have found to answer well.

We select a piece of ground upon a south border sheltered on the north side by a wall 10 feet high. The ground is made rich by adding a good deal of decayed manure and chopped turves, a slight dusting of soot being thrown over the ground when the plants are put in. As soon as the plants have flowered they are pulled to pieces, the strongest single crowns are selected for planting. We put the plants into the ground about 12 or 14 inches apart, a good watering is given, and a temporary shade is erected until the plants have got fairly under way. In sunny weather they are syringed once or twice every day in the earlier stages of their growth; during the summer a mulching of horse droppings is given, and the plants kept free from runners. At the end of September, instead of lifting the plants and transferring them to frames, we allow them to remain in their summer quarters, simply putting a board about 10 inches deep around them, upon which the lights are placed. Abundance of air is given on all favourable occasions. By having them so low, and the glass so near the ground level, they are very easily protected in severe weather; mats placed singly over the glass, and a few inches of rough litter spread over the top and around the sides is quite sufficient to keep out any severe frost.

Our limited experience with *De Parme* and the new white Neapolitan enables us to speak highly of both varieties. The former is darker in colour, stronger in habit, and blooms earlier than the old Neapolitan. The white variety grows stronger than the Neapolitan, with large blooms somewhat similar in form to the beautiful variety *Marie Louise*.—JOSEPH OLIVER, *Elington Park Gardens*.

[We have seen no finer Violets this year than have been sent to us by our correspondent as grown in the simple manner described.]

### SCIENCE IN HORTICULTURE.

In your issue of April 1st, "Young Practicalist" is, to use a common phrase, "running the foreign horticulturist down." I agree with him in some points, but in others I cannot. "Young Practicalist" tells us he has had the misfortune to work with foreigners, and he admits that, as a rule, they are better educated than Britishers in the way of sketching flowers, drawing plans, botany, &c., but when it comes to the practical part of the profession, "Young Practicalist" thinks that our foreign friends are only fit to be classed with beginners. "Young Practicalist" perhaps forgets that if any young British gardener, after working at his profession in England or Scotland from six to eight years, was then to go over to France or Germany, he would find himself farther back, both in practical and theoretical knowledge, than his fellow workmen. "Young Practicalist" seems to think that, as a rule, the British gardener does not require a knowledge of botany or chemistry, to be able to draw plants, sketch flowers, and to know a little Latin; and I will admit that it is not, as a rule, required of us from our employers, but at the same time it is very useful with practical knowledge as well. I think that some of us young British gardeners would find ourselves more to the front if we had a little more "theoretical knowledge," as "Young Practicalist" terms it, and we might devote a little more of our spare time to books and study, also taking more interest in our work, both in working hours and after. An hour or so devoted to study after our work is over for the day would never injure our health nor overtax our brains, although perhaps it might have to be a case of self-denial in something else less beneficial. A man can always be studying when he is at his work, no matter what he is doing. I do not mean to say that a young gardener should be always at work

and study, quite the reverse, for I am a strong advocate of that old saying, "All work and no play makes Jack a dull boy;" but I cannot agree with "Young Practicalist" that if a young man is fond of books and study he loses his liking for work, and thinks himself too good for the practical part of his profession, and in so doing loses the character of being an "active, industrious man."—C. COLLINS, *Howick Gardens*.

PERMIT me as a young gardener of "the period" to have a voice in the question which has lately been having consideration in your columns. Most readers would be apt to suppose, if they were to accept the ideas of "Young Practicalist," that our continental contemporaries are useless men, as he says "they are only fit to work with beginners." That may be true so far, but it most certainly is not true in the sense he gives it. If his opinions are honest, his experience must have been limited. I have worked with Swedish, Norwegian, Danish, Dutch, Austrian, French, and Germans—I do not know if your correspondent can say so much—and I must say that the majority of them are quite the reverse of novices at practice. It is certainly quite correct that most of them have had some academical education, indeed, some I have personally known who have had a university education. Among my acquaintances I have met with the sons of men holding high positions in their own country. As a rule gardening is considered a high-class profession on the continent; indeed, a great percentage of the foreign gardeners to be met with have worked in some of the continental nurseries, and it is well known that many of the new varieties of flowers, fruits, and vegetables have their origin on the continent besides. What "Young Practicalist" says about the pay of British gardeners is right, and I also agree with what he says in reference to science and art as related to practice; indeed, to a certain extent his remarks are indisputable, the chief use of science being to teach us the reason why. Without science our practice is all rule of thumb. I certainly consider that if gardeners are to keep up their reputation some kind of elementary scientific knowledge is indispensable. What would "Young Practicalist" say, for instance, about the late "Single-handed," whose articles in the *Journal*, I think, were ample testimony of the utility of chemistry? Gardeners, indeed, often outgrow their profession by taking up a science or art, and I could name more than one old or young gardener who are now earning a better livelihood by that means. It has been proposed to add horticulture to the series of subjects of the Science and Art Department. If such an able authority as Mr. Buckmaster were to take the subject in hand, there surely would be few objections in the way. I found my opinions on what the so-called practical men put so much faith in—namely, results. I had the great good fortune to have the opportunity of attending classes connected with the Science and Art Department the first season I was a gardener, and I must say that any gardener who has to do with cropping a kitchen garden will find the principles of agriculture, as far as the analysis of soils and manures, &c., go, to be as useful in the garden as the farm. I would ask "Young Practicalist" how would the superintendents of our various botanic gardens at home and the British colonies get on without some knowledge of botany. I hope I have made my ideas intelligible; there are two sides to every question, and this is no exception to the rule.—R. W. M.

IN reference to the remarks of "Young Practicalist" in your issue of April 1st, page 250, on the above heading, I feel obliged to take exception to some of his statements. It is not my intention to deal with the subject *in extenso*, but to point out what is incorrect and unjust in the second paragraph.

He says, "It has been my misfortune to work with foreigners." This last word, and the pronouns referring to it, should have been in the singular; because, his experience has been with only one foreigner, a young Frenchman from the National School of Horticulture at Versailles, who does not, as "Young Practicalist" "presumes," call himself a "picked foreign gardener." He is one who, after a three-years course in this school, is given a subvention of £50 by his government to spend a year in some establishment at home or abroad, to improve himself in those matters which will eventually be of most use to him. This grant, with his wages, makes him the best paid man among those with whom he works. Therefore the "poser" quoted by "Young Practicalist" does not apply to him.

Then follows the question, "How comes it that the head gardener at one of the most noted places in France will not employ young men from the National School of Horticulture at Versailles?" This I challenge; indeed, I know it to be untrue.

Why I take up the matter is, I annually take a student from this school, each of whom has been a pleasure and a credit to me. The young Frenchman with me now feels most keenly the injustice of the remarks of "Young Practicalist," but cannot so well defend himself in a language foreign to him. Again, as an hon. member of this School of Horticulture, I feel bound to defend it against any unjust imputations as far as lies in my power.

I feel sure if "Young Practicalist" had known more of the National School of Horticulture at Versailles he would not have written of it in the way he has.—A LOVER OF FAIR PLAY.

### LIME FOR VINE BORDERS.

I HAVE read Mr. Bardney's article again on page 104, also his reply on page 189, and think his remarks are liable to be misconstrued. Mr. Bardney seems surprised that I should use lime, but I have only written against what I consider the abuse of it.

Your correspondent says Vines cannot be grown well if bones are



used, but a friend to whom I mentioned the subject tells me he assisted to make a Vine border several years ago. It was composed of sandy turf and inch bones. The turf was used dry, and was well trodden when made up. The border was top-dressed every year with some half-decayed turf and bone dust. Five years after making a trench was opened at the edge of the borders about 2 feet wide, and the whole depth. The trench was again filled with fresh turf and bones, thus keeping the roots in the border and furnishing fresh food. Abundance of water and liquid manure was given, and the produce was good enough to win prizes in first-rate company. I have seen bones used with heavy loam with no perceptible benefit, but with a sandy soil where lime is deficient I believe bones will furnish all the lime necessary.

A writer in recommending fish potash manure confirms my opinion that Vines may be grown with a positive manure, and there is then no danger of the exhaustion which is likely to follow the use of caustic lime. Mr. Bardney's assertion that his borders are rich in humus appears to require explanation when it is remembered he uses 10 per cent. of caustic. "Thinker" points out the usual percentage of lime in a fertile soil. Does it not occur to him that it exists as carbonate of lime, and not as hydrated or caustic lime? If it is necessary to use a heavy dressing, chalk is better; it is quite as useful to prevent clubbing, may contain a little phosphoric acid, and will not destroy the humus so rapidly. The only cases in which I would use such a dressing of quicklime would be in a newly drained bog, or such heavy land as "Thinker" describes, and even in the latter case I am not sure that burning part of the soil, as recommended by F. H. Cobham, would not have been as well.

"Thinker" and Mr. Bardney say the addition of lime will not cause the loss of much ammonia from the soil, but an experiment I made seems to prove the contrary. I took three tin canisters, punched holes in the bottom of Nos. 1 and 2, put a few crocks in the bottom, and covered them with turf. In No. 1, I put some heavy loam without fibre, containing 10 per cent. of added lime, and covered it with half an inch of loam. No. 2 was not covered. I then filled the canisters with water in which I dissolved sulphate of ammonia at the rate of a handful to two gallons of water. I put the lids on, and in five minutes on taking them off I could smell the carbonate of ammonia, and on a feather wetted with vinegar being held over them a white vapour was given off. No. 3 had 20 per cent. of partially decayed horse droppings mixed with the loam and lime, and after the canister had been covered for a time, the ammonia, although it did not smell so strong, was escaping, as the vinegar proved. Mr. Bardney has evidently a strong prejudice in favour of newly slaked lime, and is consequently unfitted to judge the soundness of my views, but whether the readers of the Journal agree with me or not, I hope they will believe I had no unworthy motive in writing.—A. L. G.

[No one, we feel sure, can question the motives of our correspondent. His object is admittedly to impart information, and he takes pains to ascertain the correctness of his views. This is highly commendable, but Mr. Bardney in recording his experience on page 190 did not say that 'Vines cannot be grown well if bones are used.']

## THE PRIMULAS.

(Continued from page 276.)

*P. SINENSIS*, Ldl.—Although not a hardy Primrose is of sufficient interest to deserve notice here. It may be easily grown by those having a small greenhouse and a little heat at command to assist in raising the seed. It was introduced to this country about the year 1821, and was introduced to Breslau, Germany, by Treviranus in 1826, when the plants were priced at 9s. each, and although called the Chinese Primrose from its first introduction, its native habitat has always been doubtful until Yun-nan was explored by M. Delavay, when it was found growing wild in that locality. It is needless to recount the various and striking improvements that have taken place in this *Primula* since its introduction, the forms being endless, single and double of all forms and sizes; the strains are also numerous. I am unaware of any attempts to hybridise this with some of our less floriferous kinds. There is every reason to believe that something could be done in this way, and although the progeny might not be hardy they would probably stand rougher handling than the type. Syn., *P. pranitens*, Ker; *chinensis*, Lour.

*P. SPECTABILIS*, Trath.—This species, type specimens of which I have not yet seen in cultivation, seems to be very variable. Taking a broad view of it (and you will find intermediate forms to support it), there seems to be every gradation between the very hairy *P. Kitaibeliana*, through *Wulfeniana*, to the large-leaved *spectabilis* and *Clusiana*, the latter apparently the other extreme. In *Wulfeniana* the leaves are pointed as in the type, getting more obtuse with *Kitaibeliana* until they become rhomboid in *Polliniana*. *P. spectabilis* grows from 3 to 6 inches in height. Leaves large, shiny green on the upper surface, obscurely dentate, ovate-shaped, pointed, and more or less erect. The scape terminates in a head of from three to six large deep lilac flowers, surrounded by an involucre of narrow linear bracts. Flowers April and May.

The variety *Kitaibeliana*, Schott, answers in general character to the above, with the exception of the leaves being hairy,

distinctly crenated, and more obtuse. Var. *Polliniana*, Mor.—Almost orbicular leaves, pitted and covered with a transparent glutinous substance. Margins cartilaginous, wavy, irregularly serrated or dentate.

The variety *Wulfeniana*, Schott, is perhaps the best known of the above. The leaves are lanceolate or slightly spatulate, glabrous, shiny green, cartilaginous margins. Flowers larger than in the type, with the exception of *Polliniana*, which is rather difficult to establish. The others may be readily established on rockery. A light free soil mixed with small pieces of granite rock we find suits them well with an eastern or western exposure. Natives of Croatia, Carniola, Austrian Alps, South Tyrol, &c. Flowering April and May.

*P. STEINII*, Obrist.—A hybrid between sub-*minima* × *hirsuta*. It is most nearly related, as will be seen, to the *minima* group, a near ally to *P. Forsteri*, also a cross between the same parents, but super-*minima* instead of sub (after Stein). It is by far the easiest of this group to cultivate; more floriferous than *P. minima*. Generally with a two or three-flowered scape, and not unfrequently flowering twice in a season—in spring and again towards the autumn. It thrives best in a soil abundant in calcareous matter. Much the size and habit of *P. minima*. Leaves in largish rosettes, obovate spatulate, terminating with from seven to nine large teeth, with thinly scattered glandular hairs along the margin. Scape carrying two or three large flowers, violet purple with a white centre; flowering in April. It is found in the Central Tyrolean Alps along with its parents, where it was found in October, 1878, by J. Obrist, of the Innsbruck Botanic Garden, and we believe has not since been found.

*P. STUARTII*, Wall, and *P. purpurea*, Royle, are, in our opinion, the two least satisfactory for garden purposes of all the Himalayan Primroses yet introduced, and according to Sir J. D. Hooker its position seems to be equally unsatisfactory. He says, "This is one of the most common and puzzling of the Himalayan Primulas, if indeed there be not two or more species included under it, with possibly hybrid intermediates. *P. denticulata*, which inhabits lower levels, and *P. petiolaris*, from still lower, are the only equally wide spread and Protean Himalayan congeners. The original *P. Stuartii* was founded by Wallich on a yellow flowered plant, well figured in the "Bot. Mag." t. 4356. *P. purpurea*, published later by Royle (illustrations) t. 77 was founded on a purple-flowered one, which I find it impossible to distinguish by any other character from *P. Stuartii*, the two presenting a parallel series of varieties in the size, shape, mealiness and crenature of the leaves, number of flowers and bracts, and the shape and comparative lengths of the calyx lobes and capsule. *P. Moorcroftiana*, Wall, founded on miserable fragments collected in Western Tibet by Moorcroft, is a third supposed species, which is obviously a small state of *purpurea*. I suspect that all—i.e., *Stuartii*, *purpurea*, *Moorcroftiana*, and *lineariloba*, are forms of the beautiful *P. nivalis*, Pall, of Siberia and Central Asia." Besides the difficulty of keeping them until they are large enough to flower, they rarely if ever survive after that takes place, and a well-known grower has suggested their being biennial, an opinion we are inclined to agree with. A large plant of *P. Stuartii* we remember having seen in flower on the old rockery at Kew a few years ago, and which we found had never been seen afterwards. *Stuartii* has flowered at various times, but *purpurea* I have never seen, nor has anyone to whom I have spoken about it. The seed germinates freely, but I have never seen the seedlings live beyond the second year. We grow them in peaty soil in a northern exposure. *P. Stuartii* grows between a foot and 18 inches in height. Leaves all coming from the root, broad, lanceolate, pointed, sharply serrated, and covered on the under surface with a golden yellow meal. The flowers varying from ten to twenty, are produced in an umbel surrounded with narrow bracts, each flower about an inch in diameter, yellow, with an orange centre, and drooping as in *sikkimensis*. It was found by Royle at an elevation of 9000 feet, and flowered in the Edinburgh Horticultural Society's Garden 1847. It flowers July. Var. *purpurea*, Royle, much the same as the above, but with purple flowers and sulphury meal on both sides of the leaves. Syn., *macrophylla*, Don, *Jaeschkiana*, Kern. Other varieties are *macrocarpa*, *Moorcroftiana*, and *lineariloba*.

*P. STURII*, Schott (*minima* × *villosa*, Kern).—Found in Steiermark in 1856, and about which Professor Kerner says it is very probable that the plant found by Zahlbruckner on the Waldhorn Alps, a short distance south of Schlächning in Steiermark, and described, 1820, as *P. truncata*, Lehm, and which Lehmann later determined to be *minima* var. *pubescens*, is a cross between *minima* and *villosa*, but without personal knowledge of the locality where Zahlbruckner found the plant, and without having seen the original specimens I cannot settle the question. If the suggestion is proved the name *truncata* must be kept up and



*P. Sturii* put as a synonym. We have not seen the plant growing. *Syn. minima, var. pubescens, Josch.*

*P. SUFFRUTESCENS, A. Gray.*—One of the most charming little shrubby *Primulas* we have yet seen, and with the exception of *P. marginata* is the only one known to us with this curious habit. Fortunately, it is very easily cultivated, as shown by a large piece growing on the rockery at the Tottenham Nurseries, and we believe T. S. Ware to be the introducer of this gem. It is doing well with us in strong loamy soil, with small pieces of sandstone round the neck, and plentifully supplied with water during the season of growth. The whole plant is nearly glabrous, leaves thick, leathery textured, cuneate spatulate, and coarsely, sharply toothed at the apex. Leaves crowded on the top of the stem, the old ones being rather persistent. Stem upright or sometimes creeping. Scape about 6 inches in height, carrying three to ten flowers, deep maroon purple, with a large yellowish eye, the tube longer than the calyx, and about the same length as the lobes. Exposed rocks of the Sierra Nevada at 9000 to 11,000 feet elevation, Silver Mountains, &c. First discovered by Bridges above the Jeosmite Valley. The thick matted roots are said to fill the crevices of the rocks, and are more creeping than in any other species. Flowers April and June.—D.

### BURGHLEY PRODUCTIONS.

**CHOU DE BURGHLEY.**—It says much for anything new when it is criticised in the Press; it shows the interest taken by growers, and leads to a correct estimate of its value. I have before had something to say in favour of Chou de Burghley, but it was objected by "A Working Man" through there not having been any weather to test its hardiness. Another year's experience of it only confirms the views I had formed. It is an excellent winter vegetable, taking the place of Cabbage from October to April inclusive, and superior in flavour at that season, having a taste of Cauliflower along with Cabbage, and in spring the Cauliflower flavour is very decided in the Broccoli-like hearts. Sown in March or early April it forms large Cabbage-like heads by October, and these may be calculated on to be fit for the knife and pot any day from then to spring, as wet weather does not affect the heads to anything like the same extent as Cabbage and Savoy, for while the Cabbage and Savoys are split and torn into shreds, Chou de Burghley is unaffected by fog or rain. Frost (and "A Working Man" will note this) has very little effect upon it, and there has surely been enough frost and cold to test the hardiness of anything. After standing the winter in an open situation I had a large batch that were not any worse in March, and then came in most acceptably. They were from a sowing made early in May, and afforded a capital succession to those sown earlier. I found by planting in firm soil the plants were much dwarfer and formed closer hearts.

**CHOU DE GILBERT.**—I had this for the first time. It may be described as a Cabbage-Brussels Sprout, the Cabbage-buttons clothing the stem as in Brussels Sprouts. It grew strongly, attained to a height of 3 feet, and were studded with little Cabbage-heads from the bottom to the top of the stem. The heads or buttons are exactly similar to Brussels Sprouts, only smooth and shining, not crumpled, and more prolific. The quality when cooked is excellent, having the sweetness of Cabbage, most delicate and delicious. It seems quite as hardy as Brussels Sprouts, not being in any respect injured by the frost of the past winter. It was considered quite a delicacy at table, and I consider it one of the best vegetables introduced of recent years, even by Gilbert.

**UNIVERSAL SAVOY.**—I have grown this two seasons. It is a decided improvement upon the Ulm and Vienna varieties, and quite distinct, partaking more of the character of the Dwarf Green Curled than those varieties, and is much hardier. It is very dwarf and turns in quickly, being next to all heart, there being few useless outside leaves, and the quality excellent. Asking how it was liked at table, I was answered, "Capital, delicious, delicately flavoured." It is one of those things that can be grown by everybody, and it does not require much space. I gave it 18 inches distance, and that was ample. Those requiring small heads may give it less. It stands wet well, and frost does not damage it nearly so much as the yellow-hearted sorts. I have cut it in spring when others had only split or decayed heads, and it keeps a long time fit for use. In order to obtain a late supply a sowing should be made at the end of May or early in June for putting out after early Potatoes.

**PRIMROSE HARBINGER.**—Primroses are the most popular of our hardy flowers; even the Violet is losing ground. I wish the Primrose League would associate the Violet with the Primrose, the "bit of blue" shows off the Primrose so gloriously. Gold and purple go well together. Harbinger Primrose has foliage like the common Primrose, only more shining or less hairy. It is quite hardy, and adorns a hedgebank, copse, shrubbery, and garden quite as well as window, greenhouse, conservatory, and boudoir. It is a plant for the million. Its flowers are large and as fine in form (lacking the fringe) and sweeter than the Chinese *Primulas*, with the difference that the one is suited to everybody and the other only gladdens those with greenhouses. Its flowers are white, primrose-tinted, yellow eye, and sweetly scented. The flowers are borne in trusses—*Polyanthus*-like—and yet without the stiffness of that flower, but diffused openly have a grace exceedingly attractive. Outdoors it flowers with the Primrose, being at its best in the spring, and is fine for spring bedding, imparting a richness to borders through its purity, superior form, and floriferous character. For pots I find it extremely useful as

plants have only to be lifted from the open ground, potted, and stood in a cold frame, from which they can be drafted at intervals to a greenhouse, so as to afford a succession from the New Year to April. Well-grown plants are invaluable for house as well as conservatory decoration, and being hardy they are available where tender-flowering plants are not. It increases rapidly by division after flowering, planted in good soil on a summer-shaded border, but not by overhanging the ground and rendering it as hard and dry as a barn floor. Primroses like moisture and as much sun and light in winter as possible.—G. ABBEY.



**THE PRIMULA CONFERENCE.**—This Conference will be held on Wednesday, the 21st inst., in the Royal Albert Hall. The chair will be taken at noon punctually by John T. D. Llewellyn, Esq., Penllergare, Swansea. The following papers will be read and discussion invited thereon. The first in order is that by Mr. Shirley Hibberd, "On the origin and history of the florists' *Auricula*;" second, "In what direction should efforts be made with the view of improving the florists' flowers belonging to the genus *Primula*?" Mr. Barlow has been unable to prepare a paper on this subject, but the Rev. F. D. Horner has kindly consented to take his place. Mr. J. G. Baker, of the Royal Herbarium, Kew, will next discourse "On the nomenclature of alpine *Primulas*;" while to Dr. Masters has been committed the important subject of "Root structure and mode of growth, as affording indications of the probable best culture."

— AT a general meeting of the ROYAL HORTICULTURAL SOCIETY held last Tuesday, Maxwell T. Masters, Esq., M.D., in the chair, the following candidates were unanimously elected Fellows—namely, Alexander Finn, John Goddard, Leonard G. Sntton, and John Wright. M. Treub was elected a Foreign Member.

— **PRESENTATION TO MR. W. J. IRELAND.**—On Thursday last a few friends and fellow servants of Mr. W. J. Ireland met him in Kells to present him with a handsome gold watch as a small token of their esteem and regard on his leaving Headfort Gardens to take charge of those of Lord St. Oswald, Nostell Priory, Wakefield, Yorks. Mr. Ireland, in replying, thanked them for the honour done to him, and said he would always look back with feelings of pleasure on the time spent among them.

— WE understand that the first-prize silver medal, offered by the ENGLISH ARBORICULTURAL SOCIETY for an essay on the "LARCH DISEASE," has been awarded by the Judges to Mr. Clark, of Clark Brothers and Co., nurserymen, Carlisle, the second-prize bronze medal being awarded to Mr. Coupar, Ashford, County Galway, Ireland. The publication of these essays will be looked forward to with interest, as whole plantations of Larch are supposed to have been destroyed by this cause all over Great Britain and Ireland.

— **ROYAL AQUARIUM, WESTMINSTER.**—We are requested to state that, owing to the enlargement of, and to the extension of the time for holding the exhibition by the Kennel Clubs, the Rose Show announced for June 25th and 26th is entirely withdrawn; and the Strawberry Fête and Show, announced for July 2nd and 3rd, is from the same reason postponed until July 9th and 10th.

— **MR. STEPHEN CASTLE**, West Lynn Vineyard, King's Lynn Norfolk, states that he "Caught the first QUEEN WASP on Friday, the 9th, and another on the 12th. What this means I hardly know after the severe late winter."

— WE are informed that, owing to continued ill-health, Mr. JOHN SMITH has felt it incumbent upon him to resign his post as Curator of the Royal Gardens, Kew, an appointment he has held for twenty-two years. A brief notice of Mr. Smith's career will be found on another page.

— THE statement made on page 160 of the "Gardener's Year Book" for 1886, to the effect that the horizontal tubular boiler there figured and said to be advertised by the Thames Bank Iron Company as the "ROCHFORD" BOILER, is an error. The boiler under that name, we



are informed, is made, advertised, and supplied only by Messrs. C. P. Kinnell & Co., 31, Bankside, London, who are the sole proprietors.

— MR. J. MALLENDER, Hodsock Priory Gardens, Worksop, Notts, writes—"The minimum thermometer in my WEATHER SUMMARY in last week's Journal is made to read  $5.7^{\circ}$ ; it ought to read  $-5.7$ , which makes  $10^{\circ}$  difference, the actual lowest readings of the minimum on the grass were on the 5th  $0.1$ , on the 7th  $-5.7^{\circ}$ , on the 10th  $-1.5^{\circ}$ ; so, had it not been for the snow, we must have suffered very much."

— AT the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 21st inst., at 7 P.M., the following papers will be read:—"The Climate of Killarney," by the Ven. Archdeacon Wynne, M.A., F.R.Met.Soc. "Note on the Probability of Weather Sequence," by Lieut.-Col. C. K. Brooke, F.R.Met.Soc. "Account of the Cyclone of June 3rd, 1885, in the Arabian Sea," by Capt. Maurice T. Moss. "Results of Solar Radiation Observations in the Neighbourhood of Birmingham, 1875-1884," by Rupert T. Smith, F.R.Met.Soc., M.Inst.C.E. "Results of Meteorological Observations made at Kuala Lumpur, Malay States, 1884," by A. W. Sinclair, L.R.C.P.

— MR. ROBT. OWEN, Maidenhead, sends us some blooms of CINERARIAS of good size, bright and varied in colours, evidently a good strain. Mr. Owen states that the strain is the result of several years' careful selection, the chief objects having been to obtain good substance with varied tints.

— ROYAL HORTICULTURAL SOCIETY.—Amongst the privileges of the Fellows of this Society are the following:—"Each Forty Guinea Life and Four Guinea Annual Fellow is entitled to purchase two tickets, and each Twenty Guinea Life and Two Guinea Annual Fellow one ticket of admission to the Exhibition Buildings through which the Royal Procession will pass on the occasion of the opening of the Colonial and Indian Exhibition by Her Majesty the Queen on May 4th, at the price of 10s. per ticket, instead of £1, the price charged to the public. Application for these, accompanied by a remittance, should be made as soon as possible to the Secretary, Royal Horticultural Society, South Kensington, S.W., and no tickets can be issued after 3 P.M. on the day preceding the opening day. Only bona fide Fellows of the Society are entitled to purchase these tickets, and not their nominees. They will not admit to the Royal Albert Hall, where the opening ceremony will take place. Fellows are informed that each ordinary Fellow's card ticket (green) should be signed by that person in whose name it has been issued, and that, in addition to personal admission to the gardens and Exhibition at South Kensington, such ticket will admit the owner to the Royal Horticultural Society's Provincial Show at Liverpool, from June 29th to July 5th, accompanied by one friend. The paper orders (pink) giving admission for 6d. on 1s. days require the signature of the Fellow of the Society to whom they have been issued." The Orchid Conference Report, published by the Society, may now be had, free of charge, on application to the Secretary.

— MR. J. LESLIE, the Lodge, Pilcullen House, Perth, sends us blooms of CHRYSANTHEMUM FAIR MAID OF GUERNSEY, from plants that have been flowering since December, and asks if it is usual for this variety to bloom so long. It is certainly not usual for such fresh blooms to be sent to us on the 12th of April, and the plants that produced them must have had the best of attention.

— THE NATIONAL CHRYSANTHEMUM SOCIETY'S ANNUAL REPORT AND SCHEDULE OF PRIZES FOR 1886 is now to hand, from which it appears that three exhibitions are provided—one of early Chrysanthemums, Dahlias, and Gladioli, September 9th and 10th; the Annual Chrysanthemum, Fruit, and Vegetable Show, November 10th and 11th, and a Mid-winter Show of Chrysanthemums, Cyclamens, and Primulas, January 12th and 13th, 1887. All these will be held at the Royal Aquarium, Westminster, and the prizes are very liberal in the majority of classes. It is satisfactory to see the Society making such good progress, the number of members having greatly increased, and twenty other societies are now affiliated to it. Schedules can be had from the Hon. Sec., Mr. William Holmes, Frampton Park Nursery, Hackney.

— THE COMMITTEE of the PRESTON AND FULWOOD HORTICULTURAL SOCIETY held their fortnightly meeting on April 10th, when Mr. W. Swan of The Gardens, Howick House, Preston, read a most interesting paper, his subject being "ORCHID CULTURE." The reading was full of valuable and practical information to those present, who

numbered over fifty. The Committee very cordially invite all gardeners, under gardeners included, and there are on all occasions crowded meetings. Mr. Swan alluded to the importance of suitable structures for Orchids, giving many valuable hints upon the best means of heating, ventilating, and shading. He strongly condemned the use of white spar in Orchid houses, and in every case it should be discarded for common cinders or ordinary coke, the latter being preferable, as the spar becomes partially green and unsightly in a very few weeks, and thereby requiring to be washed frequently. Plants never appear so green when staged upon it as they do when placed upon coke or cinders. These latter also absorb a great amount of water. Mr. Swan, being a most successful grower of Orchids for many years past, rendered the subject all the more interesting. A few questions were asked by several members, which were answered by Mr. Swan, after which a little discussion followed by Messrs. Atherton, Roberts, Clarke, and others. A hearty vote of thanks was accorded for his excellent paper, which brought a most pleasant evening's proceedings to a close.

— AT a recent meeting of the LINNEAN SOCIETY Mr. J. G. Baker exhibited *Scolopendrium Devalyi*, a new species of Fern discovered by the Abbé Devalyi in the province of Yunnan. A paper was read, botanical observations made in a journey to the Naga Hills (between Assam and Manipure), by Mr. C. B. Clarke. Writing from Kohima, a station 4750 feet altitude, he says the country above 5000 feet is nearly all jungle, and that the predominant plant groups, such as the Commelinaceæ, Ruhi, Senecio, and Ferns, besides others, are nearly all identical with those growing in Sikkim, while, on the contrary, many Khasi plants are conspicuously absent. Various kinds of Oaks form forests around Kohima, and the Alder is abundant, the latter occasionally having an enormous trunk. The Nagas pollard the Alder at 6 feet from the ground, and cut the innumerable sprouts for firewood. Two rare species of Diospyros were observed. The flora is altogether rich and interesting, though there are few new species. Mr. Clarke gives an account of his ascent of Jakpho, a mountain peak 9980 feet high, and about 10 miles distant from Kohima. *Lomaria glauca*, a rare Fern in Khasia, is here plentiful, *Rhododendrons* are plentiful at 8500, and the ridge at the top is clothed with dwarf Bamboo. The levels 5000 to 7000 feet on Jakpho are mostly forests of shrubby *Strobilanthes* 6 to 12 feet high, just as in Sikkim. There are several Laurels, and *Ilex Aquifolium* exists as a tree 30 to 40 feet high. The *Convolvulaceæ* are prominent up to 5000 feet.

— AT the same meeting the Secretary read a communication on the VEGETATION OF THE ARCTIC REGIONS by M. Buysman. The author remarks that the flora of Greenland is decidedly Scandinavian in character. Almost all the plants are also found in Lapland, but, notwithstanding the proximity of America, few belong to that continent, while Asiatic Arctic types are rare. Some 378 species of phanerogams and cryptogams compose the Greenland flora. Of these over 200 are found on the eastern coast, only seven of them being absent on the western shore, while 170 species are recorded from the west, these being absent on the east. Nova Zemlya and the Island of Waigatz together possess 290 species, and Spitzbergen 117 species. The author enters into particulars regarding the special plants peculiar to the seaboard, and such are cultivated by the inhabitants both in the open air and under cover. He remarks that the long and continuous summer sunlight, and at times intense heat, have much influence on the vegetation, and counterbalance the dark severe winter season.

— COMMENTING upon the forthcoming INDIAN AND COLONIAL EXHIBITION AT SOUTH KENSINGTON, *Nature* remarks that "The collection of woods from the Andaman and Nicobar Islands, shown at the Forestry Exhibition at Edinburgh, has been greatly enlarged, especially by specimens of timber of extraordinary size from the Andamans, and will be shown in the Indian section. One of these, the *Diospyros Kurzii*, a marble wood, resembles a combination of oak and ebony. There will be two timber trophies from the Indian Forest Department; one will be a triple arch 46 feet broad by 15 feet high, containing over 300 kinds of wood, while the second will be formed wholly of bamboo, of which thirty species will be shown. The most original arrangement of woods, however, is that adopted in the Victorian Court. Each specimen is in the shape of an octavo volume, on the back being printed, as a title and place of publication, the scientific name of the wood and the locality when it came. The whole collection is enclosed in a handsome book-case, and so resembles a small library. Prof. McCoy and Baron von Müller have prepared a large natural history collection, and one of rare plants



from Victoria in albums. The Melbourne Botanical Gardens send a collection of fibres and carpological specimens. In a natural history case in the Canadian section, prepared by Col. Stockwell, will be a general representation of the fauna and flora of Anticosti. It may be hoped that one result of this Exhibition, and of the meeting of colonists from all quarters of the globe simultaneously in London, will be the establishment of a permanent colonial museum in London. The Exhibition will supply abundant materials with which to make a beginning."

### ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE spring Exhibition of this Society was held on the 7th and 8th insts. in the Waverley Market, Edinburgh. The number of the exhibits seemed smaller than in former years, and in some cases the quality was not quite so good. This was notably so in the case of Azaleas and stove and greenhouse plants, while the tables of plants arranged for effect were fewer in number. Hardy spring-flowering plants were generally poor. On the other hand, we must note the improved quality of the Orchids, while in the case of the Dutch bulbs there was certainly no falling off either in numbers or quality. Cut flowers were also well represented, and of the commoner plants, such as Arums, Primulas, Cinerarias, &c., quite a large show was made. On the second day the Society repeated an experiment which was initiated in autumn last by allowing a large number of children (1500 to 1700) from schools and institutions to visit the Exhibition. They enjoyed themselves to the utmost, and finally, through the generosity of an Edinburgh citizen, each left the building with a present. Managers of shows in populous centres should note that not the slightest damage was done.

The best prizes were offered for the tables of plants. In the nurserymen's section Messrs. R. B. Laird & Son were the sole exhibitors, and had a very neat arrangement, rendered bright with Azaleas and other plants in season. In the gardeners' section Mr. Grossart, gardener to J. Buchanan, Esq., Oswald Road, took first. The arrangement was the common one of a groundwork of Ferns with dot plants. The best of the latter were Orchids and several good Hyacinths. There was a lack of finish which might have been avoided. The second prize went to Mr. Smith, Restalrig. For a table of hardy spring-flowering plants (open) Mr. Munro Robertson, Portobello, was first, and Mr. J. Sinclair, Preston Kirk, second. Much inferior produce was exhibited on both tables, possibly unavoidable on account of the previous bad weather. Of the many prizes offered for hardy plants, Primroses, Auriculas, and so on, none brought forward any plants of extra merit. The first and second prize collections of six Alpines, from Mr. Kerr, Sunlaws, Kelso, may be excepted. Mr. John Patterson, gardener to Jas. Syme, Esq., Millbank, showed four good Azaleas, gaining the first prize; Messrs. Ireland and Thomson, and R. B. Laird & Sons, being first and second respectively in the nurserymen's section for the same plants. In Mr. Patterson's first prize stand of six stove or greenhouse plants, were good specimens of *Acacia armata*, *Erica Bothwelliana alba*, and *Tetratheca ericoides*. In Mr. Grossart's second prize collection was a magnificent specimen of *Cymbidium Lowianum*, also of *C. eburneum* and *Dendrobium fimbriatum oculatum*. Mr. J. Patterson was again first for four Cape Heaths, the plant being small in size, but well bloomed. Orchids, as has already been stated, were fine. Mr. Grossart was the only exhibitor for six plants, having a very good *Cymbidium Lowianum*, *Cœlogyne cristata*, *Vanda suavis*, and *Ada aurantiaca*. In the class for three plants, Mr. Curror, gardener to G. Douglas, Esq., Eskbank, was first with a very fine *Vanda suavis*, good *Cattleya Trianae* with seventeen blooms, and *Dendrobium nobile*. Mr. Grossart with *Dendrobium densiflorum* was first for one plant. A fine example of *Dendrobium Findleyanum* was noticeable in one collection. Two flowering plants of *Cattleya Lawrenceana* were staged, the one from Mr. Grossart, the other from Messrs. Thomson & Sons, Clovenfords. The latter firm also exhibited the new hybrid *Dendrobium Leechianum*. To all three plants first-class certificates were awarded.

Ferns were not largely shown, and mostly the plants were small. The best four exotic Ferns came from Mr. Hunter, gardener to T. Craufurd, Esq., Lauriston Castle. Mr. Patterson, Millbank, showed three good *Gleichenias*. In the classes for Dutch bulbs, Mr. Watson, Newcastle-on-Tyne, in the nurserymen's section, took first prizes for twenty-four Hyacinths, six pots of Tulips, eight pots of Narcissus, and extra prize was also awarded him for six pots of well-flowered Lily of the Valley. Mr. McKenzie, 63, Vincent Street, Glasgow, was second for twenty-four Hyacinths, Messrs. R. B. Laird & Sons, Edinburgh, being second in the Tulip class. In the gardeners' section, Mr. Kerr, Sunlaws, Kelso, was first for twelve Hyacinths, spike good but rather drawn; Mr. Pearson, gardener to Lady Lucy Dundas, Beechwood, a very good second. Mr. R. Laurie, gardener to G. D. Mackay, Esq., Crammond, had first for eight varieties, and Mr. Laurie, gardener to Professor Calderwood, Morningside, first for six. For eight pots Tulips, Mr. Grossart was a good first, and Mr. Grey, gardener to Wm. Christie, Esq., Craigend, first for six pots. Mr. Grossart six pots *Polyanthus Narcissus* was again first, also for nine *Narcissus*. A large number of *Deutzias* was shown, as also *Coleuses*, table plants, foliage plants, *Cyclamens*, *Primulas*, *Arums*, *Lilies*, and *Lily of the Valley*, most of these being good and above the average. We must not omit to mention the enormous specimens of *Rhododendrons* with which Messrs. Laird took the honours in the nurserymen's classes. Smaller plants of these were also well shown.

The display of fruit was not large. Only two Pine Apples were staged, Mr. McIntyre, gardener to Sir C. Tennant, Bart., M.P., The Glen, Peebles, being first with a good Smooth Cayenne. Five exhibitors showed Black Grapes, Mr. McLennan, gardener to Lady Emma McNeill, Liberton, being first with a brace of Lady Downe's; and with the same sort, Mr. McKelvie, Broxmouth Park, Dunbar, second. Mr. Dow, gardener to Sir David Baird, Bart., Dunbar, had six pots of Strawberries. For a dish of the same fruit Mr. McIndoe, Hutton Hall, Guisboro', was first with very fine Keens' Seedling, Mr. Dow second with *Vicomtesse Hericart de Thury*. A good display of Apples was provided, Mr. Potter, Seacliffe, North Berwick, being first with collections of both, his fruits being fresh and well kept.

Of cut flowers, the Roses were the main attraction, Mr. R. Green, Falcon Hall, being first for twenty-four blooms, and Mr. Gordon, Niddrie, second. For twelve blooms, Mr. Bowman, Lasswade, was first, Mr. Walker being first with twelve *Gloire de Dijon*, and Mr. Pearson, Beechwood, with *Marechal Niel*. For twelve trusses of stove or greenhouse plants, Mr. McLeod, gardener to C. Smith, Esq., Brentnham Park, Stirling, was awarded first, his flowers being almost all Orchids. Mr. McIndoe second, with a much better-looking collection. Camellias and *Rhododendrons* were also shown as cut flowers, and several good bouquets were set up both by gardeners and nurserymen.

Of vegetables there was a fair display. Two baskets were forwarded, Mr. Potter, Seacliffe, having the best Potatoes, Peas, French Beans, Brussels Sprouts, and Leeks were the best examples in Mr. Potter's collection. Extra fine Mushrooms were shown by Mr. Smith, Restalrig, and Mr. Gordon, Niddrie. Salads and various other vegetables were also well shown. Handsome tables of plants were arranged by Messrs. Methven & Sons, by Messrs. Dickson & Co., by Messrs. Ireland & Thomson, Mr. Sinclair, Prestonkirk, and Messrs. Seth, florists.

In addition to the first-class certificates already noted, Messrs. Canneff and Sons, Swanley, Kent, were awarded one for blooms of *Pride of Penhurst* Carnation, a very beautiful pure yellow variety of medium size. During the two days the Exhibition was open it was largely patronised, the railway companies running excursion trains from various districts, thus bringing a larger constituency under the influence of the Society.

### MILNHURST, ECCLESHALL, SHEFFIELD.

THIS is one of the finest amongst the many handsome and costly suburban residences around Sheffield, and is of very recent date, having been completed at a great cost by Major Blake, J.P. (a partner in the well-known firm of Stephenson & Blake, type founders), as a residence for himself and family three or four years since. The mansion, which is built of dressed ashlar stone and the style of which is early English, is about two miles from the town of Sheffield, on high lands, commanding magnificent views of the Peak district (Derbyshire), to which it is contiguous. The grounds in all occupy an area of about ten acres within the walls. The pleasure grounds and gardens are very complete and fine in all their details. The major has for years been locally well known as a lover and a liberal patron of horticulture; I find also he is a reader of and subscriber to our Journal. The grounds, which were naturally of a pleasing, undulating character, have been well arranged and laid out so as to make the most of the natural formations. The lawns are somewhat extensive, and fall by gentle slopes from the front of the mansion towards a sheet of ornamental water, which is very effective seen from the terrace.

There are some good kitchen gardens and a fine fruit orchard at different levels and sloping towards the south-west, but the most imposing feature of the grounds is the splendid range of plant stoves, fruit houses, &c., recently erected by Messrs. Foster & Pearson, Chilwell, Notts, which for excellency of construction and workmanship, convenience of arrangements, suitability for the purposes they are intended to serve, and general completeness, cannot be surpassed, if indeed equalled, in this district. They are so arranged as to be all connected with each other, and a tour may be made of the whole without once stepping into the open air. They consist of three span-roofed stoves, the central one being 40 feet by 20 feet; the other two being each 30 feet by 13 feet; also a lean-to vinery about 40 feet by 20 feet. These four houses running parallel with each other, having an intermediate space of about 20 feet between each house, and the whole being connected at their north-easterly ends by a lean-to range about 100 feet in length by 12 feet wide. This range is divided by partitions into several houses, one of which is devoted to Peaches and the others to greenhouse flowering plants and Ferns. At the back are the potting shed, fruit room, Mushroom house, stokeries, &c., all most conveniently arranged and well fitted throughout. The potting shed is a model of what such structures should be, being large, lofty, and very light, the roof a glazed one throughout, well fitted with all necessary cupboards, shelves, and racks, the motto appearing to be, "A place for everything and everything in its place;" also fitted at one end with lavatory and towels for the use of the young men, and well warmed by a service of hot-water pipes.

In the Mushroom house is an admirable arrangement of beds on each side a central pathway, supported upon cast metal columns, which columns are grooved for holding slate slabs, such slabs being made to slide freely in and out these grooves, and being therefore easily removable when required, making the work of emptying and refilling the beds much more convenient thereby. In the lean-to greenhouses are a good collection of Camellias and Azaleas in vigorous health. The back walls of each house are also well covered with greenhouse climbers, especially notable amongst which is a large and very vigorous *Lapageria rosea*. This is planted out in an arrow border at the foot of the wall, and was removed from a similar position at Major Blake's previous residence about a year and a half ago. It appears to have suffered little by the removal. The Peach trees planted out in the Peach house were removed from the same place to their present position in the autumn of 1884, bearing good crops of fruit last summer, and giving promise of doing the same again this season.

In the stoves is a good collection of Orchids, especially notable amongst which for vigour, floriferousness, and high colouring are the *Dendrobiums*. The latter feature I have never before noticed so prominent in all varieties alike in any collection, and I attribute it to the extreme lightness of the houses in which they are grown. A large batch of *D. Bensoniæ* is here noticeable for the vigorous growths they have made. *Phaius Wallichii* and *grandiflora* are here flowering superbly. One plant of the latter has five spikes each 4 feet and averaging twenty-two flowers on each. In



another house are exceedingly fine varieties of *Odontoglossum Alexandræ* and *gloriosum*, also of *Masdevallia ignea* and *Oncidium macranthum*.

The Vines which were planted in May, 1884, have made wonderfully strong rods in addition to maturing last summer three or four bunches each of very fine fruit. One, a Foster's Seedling, carried ten large bunches last year. Throughout all the houses excellent management and skilful culture are apparent, and show the love of horticulture and judicious liberality of the proprietor, with the skill and industry of his gardener, Mr. Herriot.—W. K. W.

#### ORCHIDS AND SPRING FLOWERS AT UPPER HOLLOWAY.

MR. B. S. WILLIAMS has provided an extensive display of bulbs and miscellaneous forced plants in the large conservatory at the Victoria and Paradise Nurseries this season, while in the numerous other houses the Orchids are contributing greatly to the attractions. Of the bulbs the Hyacinths are particularly fine, the spikes and bells large, the colours

its place amongst the most useful and popular species; it is very distinct, free flowering, the colour is extremely good, and a sufficient number has been imported to render the price moderate, though the better varieties will command good prices. The petals are  $1\frac{1}{4}$  to  $1\frac{1}{2}$  inch in diameter, the sepals are narrower but of similar colour—namely, a soft purplish crimson hue, the lip being somewhat tubular, of an intensely rich crimson tint, with a white throat. Two to four flowers are borne in a spike, and one plant in Mr. B. S. Williams' Cattleya house is showing twenty spikes, justifying the comparison between this and *C. Skinneri* as regards floriferousness. The illustration (fig. 52) was prepared from one of the Holloway plants, and gives a good representation of the form of flowers and habit.

It would be unnecessary to enumerate all the Orchids in flower at these nurseries now, but a few may be mentioned. *Lycaste Skinneri* is still attractive, the variety *amabilis* with pale pink flowers being especially good, the Chatsworth variety of *Coelogyne cristata*, the orange-coloured *Lælia harpophylla*, the useful *Sophranitis grandiflora*, *Phalænopsis*



Fig. 52.—CATTLEYA LAWRENCIANA.

clear and bright, and all the best varieties are represented. Tulips are exceedingly bright, and Lilies of the Valley are wonderfully fine; very rarely indeed are such good examples seen. With these are associated Azaleas, Deutzias, and other plants, a suitable proportion of foliage being furnished by the Tree Ferns and Palms, of which such handsome specimens are included in this spacious house.

In the Orchid houses visitors find abundance to admire, all looking remarkably healthy, and *Cattleyas* and *Lælias* are showing hundreds of sheaths, in addition to the numerous spikes of flowers now expanded. *Cattleyas Warneri* and *Trianae* are beautiful, the latter in several varieties. *C. Mossiæ* is also showing well, and of this with *C. Mendeli* there are about 500 sheaths, giving promise of a grand display a little later. The magnificent *Lælias* of the *L. purpurata* type, of which there is so large a stock and so many fine varieties, are looking well, and will furnish many hundred flowers in a few weeks. Very notable amongst many others is the new *Cattleya Lawrenciana* that has been certificated this year at South Kensington, Regent's Park, and the Crystal Palace, a trio of honours which it well deserves. Some of the earliest flowers produced were rather disappointing, and unfavourable opinions were expressed concerning it; fortunately these doubts have been removed as the plants became stronger and other flowers have been produced. This *Cattleya* will probably take

*Stuartiana*, *P. grandiflora*, and *Schilleriana* are also flowering freely. The *Vandas* are in capital condition. There are several beautiful *Cypripediums* in flower, and in the cool house there is a choice collection of *Odontoglossum Alexandræ* and *O. Pescatorei*, varieties comprising some of the best in cultivation. There is also a large stock of *Masdevallias* of the principal species.

Another great specialty at Upper Holloway are *Imantophyllums* and *Amaryllises*, which have houses devoted to them, where they afford a brilliant display. The *Imantophyllums* are extremely showy, and they well deserve more attention in gardens, especially now so many improved varieties have been obtained. They are easily grown, flower abundantly, and their hold dark green foliage renders them ornamental even when not in flower. The *Amaryllises* have been special objects of Mr. Williams' care for many years, and a valuable strain has been gradually formed, with flowers remarkable for their neatness of form and brilliant colours, in which respects they are unsurpassed. The house devoted to these plants is very gay now with the innumerable spikes, and varieties present a wide range of scarlet and crimson tints. In other houses the *Rhododendrons*, *Camellias*, *Ericas*, and hardwooded plants are yielding their flowers freely, while the stoves occupied with miscellaneous foliage plants include much that is interesting and beautiful.



## ROYAL HORTICULTURAL SOCIETY.

APRIL 13TH.

ORCHIDS and Daffodils were again the most important and beautiful of the exhibits at South Kensington; the former from several amateurs, but especially from Sir Trevor Lawrence, Bart., M.P., were admirable, the Daffodils also being largely represented by collections from the nurserymen who make a specialty of those and other hardy plants. One of the greatest attractions was the group of New Zealand Forget-me-nots from E. G. Loder, Esq., the plants being exceedingly healthy and bearing numbers of their pretty blue-tinted flowers. The Berkhamstead Rhododendrons, with miscellaneous contributions from various sources, occupied the whole of the remaining table space on both sides of the conservatory, and formed the most imposing display held by the Society this year.

**FRUIT COMMITTEE.**—Present: T. Francis Rivers, Esq., in the chair, and Messrs. H. J. Veitch, Wm. Denning, John Burnett, F. Rutland, Wm. Paul, John E. Lane, James Smith, Joseph Ellam, John Woodbridge, William Warren, T. J. Saltmarsh, G. Goldsmith, Chas. Silverlock, T. B. Haywood, and R. D. Blackmore. A silver medal was awarded to Mr. Cummins, gardener to A. H. Smee, Esq., The Grange, Wallington, for an excellent collection of Apples, comprising fifty dishes, nearly all distinct varieties, and six dishes of Pears, the fruit being firm and extremely well kept. The best varieties of Apples were Dumelow's Seedling, Lord Burghley, Winter Colmar, Ribston Pippin, Stone Apple, Glove Pippin, Maiden Millet, and Brabant Bellefleur; the Pears being Catillac, Uvedale's St. Germain, Duchesse Tardive, and Bezi Mai. A letter of thanks was accorded to Mr. Stephen Castle, West Lynn Vineyard, Norfolk, for several good bunches of Gros Colman Grape, the berries large, plump, and bearing a fairly good bloom. A dish of unnamed Apples from H. A. Brassey, Esq., Preston Hall, Aylesford, Kent, was passed.

**FLORAL COMMITTEE.**—Present: G. F. Wilson, Esq., F.R.S., in the chair, and Messrs. R. Dean, John Denning, H. M. Pollett, James O'Brien, W. B. Kellock, R. Hill, G. Paul, H. Cannell, J. Douglas, W. Bealby, Amos Perry, B. S. Williams, H. Herbst, W. Wilks, James Hudson, G. Duffield, Harry Turner, H. F. Lendy, H. Ballantine, William Holmes, and Shirley Hibberd.

Some handsome specimen Orchids were contributed by several growers, but the group from Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, was a most important portion of the Show, including several remarkably well-grown plants, and the silver-gilt Banksian medal awarded them was a worthy recognition of their merits. Very conspicuous in the group was a magnificent example of *Oncidium Marshallianum*, with spreading panicles bearing scores of large flowers, the lip broad bright yellow, the sepals and petals smaller, and spotted with reddish brown. *Odontoglossum vexillarium roseum* is a beautiful variety, the flowers deeply coloured with rose, large and freely produced, the plant shown having four spikes of six flowers each. *Cattleya Lawrenciana* was capitally represented by a plant bearing fifteen flowers. *Cypripedium caudatum* had twenty-two of its peculiar flowers, with long ribbon-like petals. Of *Cattleya Mossiae* there was a fine variety, the sepals and petals blush tinted, the lips white and gold streaked, pale crimson, very delicate and beautiful. *Dendrobium Harveyanum* and *Brymerianum* were also shown, both golden coloured, the former with the petals deeply fringed, and the latter with the lip similarly but still more deeply cut. *Masdevallia racemosa* Crossi is a very distinct form, bright scarlet, but the flowers curiously contracted. *Maxillaria Turneri* had some hundreds of its small flowers; the rosy crimson *Trichopilia lepidota* was attractive; *Cattleya Mendeli*, *Dendrobium crystallinum*, *D. lituiflorum*, and the white *Saccolabium curvifolium album* were also well represented. A series of grand varieties of *Anthurium Schertzerianum*, remarkably well grown, formed a part of the Burford Lodge group. They were as follows: Wardi, thirteen spathes,  $4\frac{1}{2}$  inches wide by 5 inches long; Devansayanum, spotted with scarlet on a white ground, certificated; Rothschildianum, similar to the last mentioned but broader; Hendersoni, Cypher's variety, ten spathes, each 6 inches long by 5 inches wide; Palmeri, having the longest spathes, 8 inches by  $3\frac{1}{2}$  inches broad; Pygmaeum, narrow tapering spathes, and a number of Cypher's seedlings, the spathes of various sizes and shapes. All were exceptionally bright in colour.

An interesting hybrid, *Phalaenopsis intermedia*, was shown by Messrs. J. Veitch & Sons, Chelsea, which has been previously referred to when the first flower expanded, this being the second. It was raised from seed in 1882, obtained by crossing *P. amabilis* with *P. rosea*, which was done to prove if *P. intermedia* was really the natural hybrid it was supposed to be. The flowers produced confirm this view, for they have the true character of *P. intermedia*, the sepals and petals are white, the petals tinged with crimson at the base, the centre and side lobes of the lips are purplish crimson, with a few dots and a yellowish crest at the base, the flowers being about 2 inches across, and the foliage the same as that of a well-grown plant of *P. intermedia*. H. J. Buchan, Esq., Wilton House, Salisbury, exhibited a plant of an *Odontoglossum* which had been received under the name of *liliflorum*, but which was thought to be *ramosissimum roseum*, the flowers 2 inches across, with narrow pink undulated sepals and petals, and a tapering lip with a white crest. They are borne on a panicle at the end of a peduncle 4 feet or more in length, the stiff leaves growing to the length of 2 feet. Mr. Buchan also had flowers of some handsome varieties of *Odontoglossum* Halli and its variety *leucoglossum*, *luteopurpureum*, *Alexandrae*, finely tinted with pale crimson at the base of the petals, *Andersonianum* and *Rossi*, all notable for rich colouring and good size of flower. C. L. N. Ingram, Esq., Elstead House, Godalming (gardener, Mr. J. W. Bond) showed several Orchids; *Odontoglossum Elsteadianum*, having narrow yellow sepals and petals spotted with brown, *Phalaenopsis Sanderiana* superba, and *Odontoglossum Andersonianum* were all notable varieties. W. B. Greenfield, Esq., Beechwood Park, Dunstable (gardener, Mr. Freeman) had a capital spike of *Calanthe vestita igneo-oculata*, the flowers extremely large, white with a brilliant orange centre. A. H. Smee, Esq., The Grange, Wallington (gardener, Mr. Cummins) exhibited several plants of *Cattleya citrina* in flower (vote of thanks), *Warszewiczella discolor*, with creamy sepals and purplish violet petals and lip, which some not inaptly compared to a *Gloxinia*, with *Scuticaria Hadweni*, a peculiar plant, with cylindrical or channelled drooping leaves and brown flowers, the lip white veined with pink. A. J. Hollington, Esq., Enfield (gardener, Mr. E. Ayling)

showed a delicately coloured *Odontoglossum Alexandrae* named *roseopictum*, white tinged with rose and spotted with brown.

W. Lee, Esq., Leatherhead, contributed a small group of choice Orchids, including some well-flowered *Cattleya speciosissima*, *Epidendrum Stamfordianum* with two panicles of flowers, the distinct and beautiful *Cypripedium Godefroya*, and a variety with finer dots, the charming *Oncidium Phalaenopsis* with small flowers, white, spotted violet crimson at the base of lip, the sepals and petals being barred with a similar but darker tint. A bronze medal was awarded to H. M. Pollett, Esq., for a choice collection of *Odontoglossum*, comprising some of the best varieties of *Andersonianum*, *Ruckerianum* insignis, *Wilckeanum*, *Mulus*, *Pollettianum*, and *Schillerianum*. R. B. Lemon, Esq., Mont Lodge, The Avenue, Beckenham, showed *Oncidium Reichenbachii*, a variety having brown sepals and yellow petals, spotted with brown at the centre. Messrs. J. R. Pearson & Son, Chilwell, exhibited several large-flowered varieties of *Dendrobium Wardianum* and *nobile*, the latter being also deeply coloured.

Messrs. J. Veitch & Sons had a selection of their new *Amaryllises*, one of which, *Princess of Wales*, was certificated. Other good varieties were *Eclatante*, white, striped crimson; *Etoile*, scarlet with a white central star; *Compton*, brilliant scarlet, the white central bars extending half the length of the petals; *Pioneer*, crimson, medium size, but good form and distinct shade of colour; and *Crown Princess of Germany*, white striped scarlet, the flowers rounded and well proportioned. Plants of the interesting dwarf Japanese *Heliconopsis umbellata* were staged by the same firm, the flowers pale pink and drooping, the petals narrow. They rise about 3 inches above the rosette of leaves. The greenish yellow *Fritillaria-like Korolkowia Sewerzowii* was also shown. Mr. B. S. Williams, Upper Holloway, contributed a group of plants, the *Imantophyllums* being very fine, the varieties *aurantiacum* and *Ambroise Verschaffelt* being noteworthy for the massiveness of the umbels, the size of the individual flowers, and the rich orange-scarlet shades of colour. *Houlletia odoratissima* is a peculiar Orchid, with brownish-red sepals, the petals and lip being yellowish, the flowers borne in a drooping spike. *Odontoglossum cuspidatum* has yellow sepals, petals blotched with brown, and a white lip. *Masdevallia Harryana lilacina* is a distinct and delicately tinted variety, very pretty in contrast with the darker coloured varieties. *Araucaria Vervaeckiana*, an elegant variety of the excelsa type, and the strangely marked *Bromeliad Vriesia hieroglyphica*, were also shown by Mr. Williams. Mr. W. Bealby, Rosebampton, had a good double white *Azalea indica*, named *Sacountala*, very full and pure. G. F. Wilson, Esq., F.R.S., Weybridge, showed flowers of *Megasea speciosa*, large, and of a bright rosy tint. *Primula denticulata purpurea*, and a lovely *Primrose* named *Alice Wilson*, which was certificated. Messrs. H. Cannell & Sons, Swanley, sent flowers of *Carnation Pride of Penhurst*, bright clear yellow, and the scarlet *A. Alegatiere*, which were greatly admired. Mr. F. Perkins, 51, Regent Street, Leamington, exhibited flowers of the now well-known white decorative *Pelargonium Volonté Nationale album*. Mr. James Gray, horticultural builder, Danvers Street, Chelsea, showed a sample of improved Orchid staging, in which the upper part consisted of wood laths in moveable lengths, to allow shingle or ashes on the stage below to be removed with ease. Slate, oak, or elm slabs form the lower stage, resting upon wrought iron standards, and covered with shingle or small coal to retain moisture. It was neatly but strongly constructed, and is one of the best forms of stages for Orchid houses, either over tanks, at the side, or otherwise.

The groups of Daffodils were very extensive and comprised a large number of varieties, the best of which we have mentioned at different times, and the report of the Narcissus Committee will, no doubt, particularise the leading sorts, especially the novelties. Medals were awarded as follows:—Silver Banksian to Messrs. Barr & Son, Covent Garden, T. S. Ware, Tottenham, and bronze Banksian to Messrs. Collins Bros., and Gabriel, Waterloo Bridge Road, New Plant and Bulb Company, Colchester, and Mr. J. Walker, Whitton. Anemones and miscellaneous flowers were included in several of these collections, Mr. Ware's Single Poppy Anemones being exceedingly bright and varied in colour. A silver medal was also awarded to Messrs. H. Lane & Son, Great Berkhamstead, for a group of Rhododendrons in pots, representing many varieties of good colour.

## CERTIFICATED PLANTS.

*Myosotidium nobile* (E. G. Loder, Esq., Floore, Weedon).—This plant, which is popularly known as the New Zealand Forget-me-not, is a native of the Chatham Islands and a member of the Borage family. It was introduced to Europe by Mr. Watson of St. Albans, and first shown in flower before the Horticultural Society in London, March 1858. It was at first referred to the genus *Cynoglossum*, but was subsequently constituted a new genus under the name given. The leaves are heart-shaped, 8 to 9 inches broad, and as much long, with a stout petiole, bright, shining, and deep parallel veins, like a gigantic *Plantago*. The flowers are produced in a cymose inflorescence, forming a rather dense head; they are about half an inch in diameter, of a bright blue in the centre, shading to white at the margin, and much like the *Myosotis* in form. It is a beautiful plant, and the samples shown were wonderfully strong. The gardener at Floore, Mr. J. Goldsmith, states that they are grown in loam, leaf soil, one-third horse manure, and plenty of sand, being placed in a cold frame, but protected from frost. The plant is usually considered difficult to grow and is rarely seen in flower.

*Odontoglossum Pescatorei*, *Knox's Variety* (B. D. Knox, Caversham, Reading).—A supposed natural hybrid between *O. Pescatorei* and another species, but wonderfully distinct from anything yet obtained, and very valuable. The flowers are  $2\frac{3}{4}$  inches in diameter, the sepals and petals broad and rounded, bright yellow, lighter at the base, with a few bold crimson spots, the lip broad, lighter, and with few spots. A superb form and fine companion for *O. Pescatorei* Veitchii.

*Lycaste Skinneri gloriosa* (W. C. Pickersgill, Esq., Blendon Hall, Bexley).—A splendid plant of this was shown with two dozen flowers. The sepals pale blush, the petals crimson and the lip white. Very handsome and admirably grown.

*Amaryllis Princess of Wales* (J. Veitch & Sons).—A superbly formed flower, the petals broad and round, flushed with pale crimson, and streaked with white, very delicate.

*Amaryllis Crown Princess of Germany* (J. Veitch & Sons).—A beautifully



formed flower, the petals round and well proportioned. It is one of the best of the striped class, which afford such a pleasing contrast with the scarlet and crimson varieties. The ground colour is pure white striped irregularly with bright scarlet.

*Primrose Alice Wilson* (G. F. Wilson, Esq.).—A seedling from Primrose Scott Wilson, the flowers neat in shape and of good size, but chiefly remarkable for the distinct and rich colour, a violet purple with a gold eye, which is surrounded by a crimson margin. An exceedingly pretty variety.

*Masdevallia racemosa* Crossi (Sir Trevor Lawrence, Bart., M.P.).—A distinct variety, brilliant scarlet in colour, the sepals looking as if shortened or contracted, especially the lower ones.

*Anthurium Schertzerianum Devansayanum* (Sir Trevor Lawrence, Bart., M.P.).—One of the same type as *Rothschildianum*, but the spathe is narrower, about  $4\frac{1}{2}$  inches long, boldly spotted with deep scarlet on a white ground, and the back of the spathe is scarlet instead of being dotted as in the other form named.

*Cypripedium Wallisi* (W. Lee, Esq.).—A species of the caudatum section, with tapering greenish sepals, and long narrow brownish-green petals, 12 to 15 inches long, the lip greenish white, pure white in the throat.

*Odontoglossum Courtauldianum* (S. Courtauld, Esq., Braintree, Essex).—One of the luteo-purpureum type, yellow blotched and barred with brown, the lip having a white spot at the base.

#### SCIENTIFIC COMMITTEE.

A. Grote, Esq., in the chair. Present:—Messrs. Llewelyn, Michael, Pascoe, Boulger, Bennett, W. G. Smith, J. O'Brien, G. F. Wilson, Rev. C. W. Dod, A. H. Smee, G. Murray, H. Ridley, Major Clarke, Prof. Church, Dr. Hogg, and Dr. Masters.

*Rhododendrons*.—Mr. Llewelyn exhibited from the neighbourhood of Swansea various *Rhododendrons*, all grown out of doors except *R. Edgeworthii*. The species and varieties included *R. Shepherdii* (?), *R. ochraceum*, *R. barbatum*, *R. Thomsoni*, *R. ciliatum*. Many of these are as hardy as the common Oak, provided they do not make their growth too early in spring. Most of the trees mentioned by Mr. Llewelyn were introduced many years since from Himalayan seed, and have now attained a height of 25 to 30 feet.

*Sparrows and Crocuses*.—Mr. Boulger gave his experience as to the mischief effected by sparrows. Unlike Mr. McLachlan, he had found that the birds principally attacked the edge of the corolla and not the tube. It was remarked that Crocuses in masses were less liable to injury than when in lines.

*Primroses*.—Mr. Boulger exhibited various forms of hose-in-hose Primrose, in which the calyx was petaloid like the corolla, and a malformation in which the stamens were all united into a tube.

*Fungus Poisoning*.—Mr. W. G. Smith read an account of the injurious effects produced on himself by partaking of *Agaricus dealbatus*. The species is capricious in its action, as it does not always, and under all circumstances, produce the effects described by Mr. Smith, and which consisted in a sensation of heat and excessively profuse perspiration. No other ill effect was produced, and others who ate the fungus at the same time were not affected.

*Weevil on Orchid Bulbs*.—Mr. O'Brien showed pseudo-bulbs of *Cœlogyne cristata*, injured by a beetle which was referred to Mr. Pascoe for identification. A conversation ensued respecting *Isosoma* and other insect pests imported with Orchids, and it was suggested that any suspicious-looking plants should be destroyed, but it was pointed out that the damage was probably done in a young state of the insect, and that destruction of the perfect insect or of the affected bulbs might be of little avail. Mr. Llewelyn alluded to certain longicorn beetles imported with timber from the Baltic, and which were illustrations of life under untoward circumstances, the beetles being found in the timber used in the mines after a long period of use under ground.

*Frost on Leaves*.—Mr. G. Murray stated that the leaves referred to him on a former occasion were injured by frost and not by fungi or insects.

*Odontoglossum ramosissimum*.—Mr. Buchan showed a specimen of this plant determined by Professor Reichenbach to be the var. *roseum*, but as the Professor had not seen either leaves or pseudo-bulbs, which differ materially from those of *ramosissimum*, it was considered that the determination was open to doubt.

*Outdoor Orchids*.—Mr. A. H. Smee showed a plant of *Cattleya Trianae* in bloom. The plant was placed in the open air, exposed to full sunshine from June 24th, when the entire growths were made, and taken in again on September 24th. The flowers were of a richer colour than those formerly produced on the same plant under glass. A plant of *Cypripedium insigne* was also shown, which had been out of doors all through the winter with only the protection of a broken handglass. The plant had been exposed in a similar way for two or three years, and this year had been subjected to 22° frost without injury.

*Phaiosopsis intermedia*.—A botanical certificate was awarded to this plant from the great interest attaching to the circumstance that this artificially raised hybrid, whose history is given in the report of the Show, proves to be identical with imported plants suspected (and now proved to be of hybrid origin).

*Miscellaneous Exhibits*.—Owing to the number of subjects brought forward, the following subjects were laid on the table:—A specimen of *O. Alexandræ*, in which alternate flowers were fertilised, and had become of a fawn colour, while the virgin flowers remain of their usual colour. A burr of *Abies Douglasi*, showing a condition of things like the *Clanbrassil* Fir. Peculiar growths of the Laburnum, in which the growth of last year was much thicker than that of the year preceding.

#### HEDGES.

HEDGES are sometimes planted to afford shelter, but more frequently as a fence. However carefully they may be planted and cared for in a young state, it must be admitted that without the same care in after years they soon become unsatisfactory and unfit for the purpose for which they were planted. Perhaps this remark may apply with much greater force

to hedges on the farm than to those about the garden. How often do we meet with hedges that have been left to grow untended for years, dying at the bottom for want of light and air, and with large gaps. When it gets into this state the farmer finds it is of no use to keep his live stock together, so he cuts it down to the ground, very likely with the good resolution to keep it better in future, but with the result that he has no fence at all for some years to come. Even about gardens hedges sometimes become unsatisfactory, though from a somewhat different cause. They are generally kept under the shears, and if due care is not taken to keep them within bounds they gradually become too wide and heavy at the top, and so become, to a certain extent, faulty at the bottom.

Hedges surrounding plantations are especially liable to fail. They very often are damaged by the trees being too close to them, and in time overhanging them. They are thus weakened and drawn outwards, so that we very often find them similar in shape to that given at A, fig. 53. When such hedges get very bad the usual remedy is to cut them down. This is, however, not always necessary nor desirable. If the timber is well cleared away from behind them, and they are cut in so that they are narrow at the top, similar to the dotted lines in the section referred to, stopping the upper part of them well back, they will generally fill up at the bottom if kept clean and narrow at the top. The best time to do this, or indeed to reduce a hedge in any way, is when the sap begins to move in spring, say from the middle of March to the middle or end of April according to the season. They then soon break in to growth, and are green again in a short time. The ends of the young shoots should be cut off about midsummer, and by the autumn there will be a fair quantity of young growths upon it.

Hedges are to be met with in a great variety of shapes, some of them

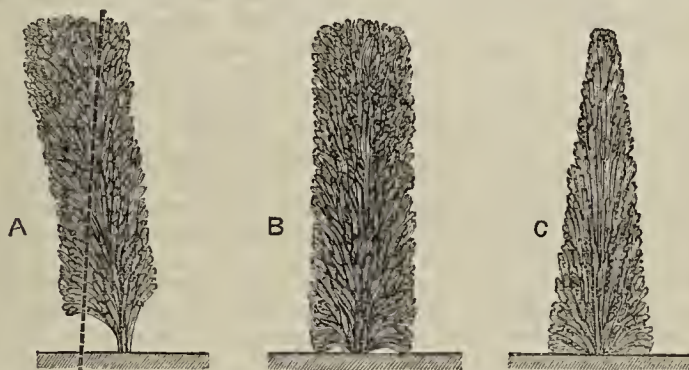


Fig. 53.—Hedges.

not commendable. I am rather partial to those with almost perpendicular sides, such as represented at B. But there is no doubt that to keep a good close bottom good enough to turn sheep, &c., the top must be kept a good deal narrower than the base, similar to C. This is not only an advantage in the formation of a good fence, but it is a saving in the labour of keeping. It is quite a common thing to meet with hedges from 2 to 3 feet across the top, and cutting these, propped upon steps or a plank, is a laborious task which may well be avoided. Too much labour is generally expended on the tops of hedges, and too little at the base, in keeping them clean and well furnished. If you can accomplish the latter good quality, the top, which is really of secondary importance, may safely be relied upon to assert its claim to a fair share of the shears, which it should always have. I have sometimes seen young hedges grow four or five years without cutting, to give them strength, and then have them cut down. Is not this a fallacy? I think it is most foolish. If a hedge is from the first turned in the shape of section C, keeping it quite narrow at the top, a good fence will be the result without any cutting down.—R. INGLIS.

#### HINTS ON ORCHID CULTURE.

(Continued from page 271.)

##### ORCHIDS OUT OF DOORS.

MANY of the Orchids already named in the various lists can, under certain favourable conditions, be placed out of doors during the summer months, and the hardier of the cool Orchids seem benefited by such treatment; while with all it has the advantage of keeping them free from insects, and ripens the growths well. It can, however, only be safely done in gardens that are rather sheltered and moist in warm districts, like the southern counties of England. To expose Orchids in hot, dry, or cold gardens would be ruinous, and amateurs who do not wish to lose a large proportion of their plants had better not try such experiments; though with any kind of shelter, as an ordinary frame, most cool Orchids can be grown during the six warmer months of the year. The principal experiments with Orchids out of doors have been tried in Mr. A. H. Smee's garden, where large numbers have been placed out from June to October with satisfactory results, but this garden has a low moist situation, and is otherwise favourable for the purpose. [See *Journal of Horticulture*, p. 392, November 8th, 1883.] Upon the continent similar experiments have been repeatedly tried; indeed it is quite common there to place all but the most tender Orchids outside in the summer. [See *Journal of Horticulture*, pp. 481 and 550, December, 1883.]



## HARDY ORCHIDS.

The hints which have been previously given refer exclusively to the exotic Orchids, which require to be grown in glass houses in this country, but there is a large group of beautiful species, mostly terrestrial, which can be cultivated out of doors. Amongst them are several found wild in Britain, but none the less worthy of attention on that account, though we owe the showiest to North America, such as the beautiful rose and white *Cypripedium spectabile*, which, when well grown, is superior to many of its tropical brethren. *Orchis foliosa* and *maculata*, with crimson and spotted flowers in dense racemes, are also plants of great attraction, and admirably adapted for culture in pots. We have plenty structurally interesting in the genus *Ophrys*, which comprises the Bee, Spider, and Fly Orchids, and many are also sweetly scented. The situation most suitable to the greater number is at the foot of a rather shady bank or rockery, and then the other species which are found on higher lands, and require a chalky or sandy soil, can be accommodated upon the slope. For some a constantly damp soil of peat, leaf mould, and a little turfy loam is the best, such as *Cypripedium spectabile*, *Epipactis palustris*, *Orchis foliosa*, *O. latifolia*, *O. maculata*, and *O. Stabiana*. Another group requires a slightly drier position and a small proportion of sand in the soil, such as *Calopogon pulchellus*, *Cephalanthera grandiflora*, *C. rubra*, *Cypripedium acaulis*, *calceolus*, *candidum*, *japonicum*, *macranthum*, and *pubescens*; *Epipactis latifolia*, *Goodyera pubescens*, *Gymnadenia conopsea*, *Habenaria japonica*, *H. radiata*, and *H. viridis*; *Orchis mascula*, *papilionacea*, and *spectabilis*; *Serapias cordigera*, and *longipetala*. The third group require to be comparatively dry during winter, but moist at other times, though not wet like the first named, and the soil should consist of loam or peat and chalk. The best for this position are the following: *Aceras anthropophora*, *Habenaria bifolia*, *lutea*, and *chlorantha*; *Neottia spiralis*, *Ophrys arachnites*, *aranifera*, *apifera*, *speculum*, *tenthredinifera*; *Orchis atlantica*, *coriophora*, *longicornis*, *militaris*, *pyramidalis*, and *undulatifolia*. Some of those named for the cool house can also be grown, like *Bletia hyacinthina*, and *Disa grandiflora* can also be grown in cold frames out of doors, and the former has proved hardy in a few sheltered districts. All the hardy Orchids deserve much more attention than they receive, and they are by no means so difficult to grow as some imagine, if strong roots are obtained when dormant, and planted either in late autumn or early spring, the latter being the best if the plants are giving no signs of growth. The greatest trouble is experienced with wild plants lifted when in growth and transferred to gardens, these almost invariably die. Most of the species enumerated can now be purchased cheaply at nurseries, where hardy plants are made a specialty.

## THE DURATION OF ORCHID FLOWERS.

Many Orchids continue in flower for a great time, either from the duration of the individual flowers or their production in succession over an extended period. Some, like *Cypripedium insigne*, last for a remarkably long time when cut and placed in water, continuing fresh for two or three weeks. *Dendrobiums* of the noble character are useful for cutting, as they can be employed in bouquets and button-holes with great advantage, though not lasting so well as the *Cypripedium*. To assist in the preservation of flowers on the plants avoid an excess of moisture in the air, and be careful not to damp the flowers when syringing. Some also remove the pollinia to prevent fertilisation, and where bees are numerous this is advantageous, as the flowers of most Orchids fade almost immediately after fertilisation. The list appended gives the names of a selection of the Orchids which continue longest in flower:—

Orchids lasting eight weeks in bloom—*Vanda Sanderiana*, *Oncidium Jonesianum*, and *Ceologyne ocellata*. Lasting twelve weeks—*Cypripedium Argus*, *C. barbatum*, *C. Spicerianum*, *Dendrobium Deari*, *Lycaste Skinneri*, and *Masdevallia ignea*. Lasting thirteen weeks—*Oncidium tigrinum*, *Odontoglossum cariniferum*, *O. Rossi majus*, *Sophrontis grandiflora*, and *Vanda coerulea*. Lasting sixteen weeks—*Cypripedium Harrisianum*, *Calanthe Regnieri*, *Epidendrum crassifolium*, *Laelia pumila Dayana*, *Odontoglossum cordatum*, *O. bictonense*, *Oncidium cucullatum*, *O. incurvum*, *Masdevallia tovarensis*, *Phalænopsis grandiflora*, and *Vanda Batemani*. Lasting twenty weeks—*Epidendrum radiatum*, *O. vitellinum majus*, *Odontoglossum maculatum*, *O. membranaceum*, *Oncidium flexuosum*, and *O. linguæ-forme*. Lasting twenty-six weeks—*Dendrobium bigibbum*, *Masdevallia Normani*, *Odontoglossum Uro-Skinneri*, and *Phalænopsis rosea*.

The *Cymbidiums* also last a long time, and others could be named, but those mentioned will suffice as examples, though one curious instance, *Masdevallia oethoides*, deserve notice, as a plant has been had in flower for five years.—AN AMATEUR.

## ROYAL BOTANIC SOCIETY.

APRIL 14TH.

THE second Spring Show of the year was not quite so large as usual, but the nurserymen's and amateurs' non-competing groups were numerous

and occupied considerable space, most of the former being the same as those at Kensington on the previous day.

Messrs. Paul & Son, Cheshunt, were awarded the first prize for nine Roses in pots, showing handsome healthy specimens, profusely flowered, the best varieties being *Madame de St. Joseph*, *Innocenti Pirola*, *Madame Lacharme*, *Villaret de Joyeuse*, *Souvenir d'un Ami*, and *Alba Rosea*, some of which had several dozen flowers each. The White Baroness was also represented by a good plant, bearing full white or bluish-tinted blooms. The amateurs' prizes for Azaleas were gained by Messrs. Wheeler, W. Wesker, gardener to A. Heaver, Esq., Wandsworth Lodge, Tooting, and H. Eason, gardener to B. Noakes, Esq., Hope Cottage, Highgate, for plants of medium size well flowered. In the nurserymen's class for six Azaleas, Mr. C. Turner, Slough, with superbly flowered plants of *Jean Vervaene*, *Duc de Nassau*, *Baron de Vriere*, single, white, large, *M. Thibaut*, *Madeleine*, double, white, good, and *Roi d'Holland*, bright red. Messrs. H. James and Cutbush and Son were the other prizetakers. For twelve *Amaryllises* the same firm was first with extremely bright and varied coloured forms.

*Cinerarias* were not of remarkable merit; they were shown by Messrs. Hill, Phillips, and H. Williams & Son. Both prizes for twelve *Auriculas*, *Show* and *Alpine* varieties, were gained by Mr. C. Turner, who had strong plants of the leading varieties.

*Pelargoniums* were staged by Mr. R. Phillips and H. Williams & Son. Mr. T. S. Ware won the first prize for a choice collection of *Alpine* plants, and Messrs. Paul & Son gained a similar prize for twelve hardy herbaceous plants, also having some good plants, and they were second in the *Alpine* class with an interesting selection, *Primula nivalis* being especially noteworthy. Messrs. H. Lane & Son, Great Berkhamstead, were awarded the first prize for twelve hardy Azaleas of the *mollis* type, the varieties brightly coloured and flowers large. The same firm was also first with twelve *Rhododendrons* flowering profusely.

The miscellaneous groups formed much the greater portion of the exhibition. Mr. B. S. Williams, Upper Holloway, had a very choice collection of Orchids, *Amaryllises*, *Imantophyllums*, *Cinerarias*, and fine-foilage plants (large silver medal). *Daffodils* and hardy flowers were shown by Messrs. Barr & Son, Covent Garden (silver medal); T. S. Ware, Tottenham (small silver medal), and Collins Bros. & Gabriel, Waterloo Road (small silver medal), the exhibits being similar to those at Kensington.

Messrs. H. Lane & Son had a group of *Rhododendrons* and *Azalea mollis* (silver medal). H. Little, Esq., Hillingdon, Uxbridge, had a fine group of well-grown *Lycaste Skinneri*, *Odontoglossums* and *Cattleyas* (silver medal).

Certificates were awarded as follows:—To Messrs. J. Veitch & Sons for *Amaryllises Hedila*, *Pioneer*, and *Crown Princess of Germany*; to Mr. B. S. Williams for *Amaryllises Marshalli* and *Joseph Broome*; to Messrs. E. G. Henderson & Son for *Adiantum fragrantissimum*; to Mr. T. S. Ware for *Cypripedium macranthum*; and to Messrs. Paul & Son for *Dentaria podophylla*.

## DURHAM, NORTHUMBERLAND, AND NEWCASTLE-ON-TYNE BOTANICAL AND HORTICULTURAL SOCIETY.

THE spring Show of the above Society was held on Wednesday and Thursday last in the Corn Exchange and Town Hall, Newcastle-on-Tyne, and notwithstanding the extraordinary season was of a most satisfactory nature. A different method of arrangement was adopted this year. The visitors were agreeably surprised in entering the Exhibition to find three rows of plants in ribbon fashion 120 feet long, the base being *Cinerarias*, next row *Spiræa japonica*, and the top *Dielytra spectabilis*. This has a most pleasing effect, but had the *Cinerarias* been raised a little higher from the ground we think the effect would have been considerably enhanced, and the new feature consisted in placing tall plants and Palms amongst the Azaleas, which was desirable in breaking the monotony of their outline.

The chief prize for plants, £5 and a silver medal, was won by Mr. Ford, Pieremont Gardens, Darlington. *Rhododendron Veitchi*, 6 feet across, well flowered, was splendid; *Genetyllis tulipifera*, one mass of flowers; *Clerodendron Balfourianum*, with every calyx perfect; and the best of all *Erica Victoria Regina*, about 5 feet across, every shoot flowered, and of an excellent colour, the whole forming a quartette, hard to beat by the most skilled cultivator. Mr. Noble, gardener to Theodore Fry, Esq., Woodside, Darlington, was second with *Tetratheca hirsuta*, *Genetyllis Hookeri*, *G. fuchsoides*, and a splendid plant of *Cattleya Trianae*, with eleven spikes, but past its best. Mr. J. McIntyre, gardener to Mrs. Gurney Pease, Darlington, was first with Azaleas—viz, *Oswald de Kerchove*, *Comtesse de Flandres*, *Apollon*. Mr. Ford was second with neat plants of *William Bull*, *Duc de Nassau*, and *Roi d'Holland*. For Palms Mr. Hunter, gardener to E. A. Walker, Esq., Low Elswick House, Newcastle, was first; Mr. J. Morris, Park Filling, being second. The *Dentzas* were an excellent show, Mr. F. C. Ford obtaining first prize, followed by Mr. Joseph Puntun. Mr. Corbett, gardener to E. Liddell, Esq., Benwell Grange, was first for *Genistas*; and for *Spiræas*, which were well represented, the prizes were awarded to Mr. Corbett and Mr. J. Morris respectively. For six *Cinerarias* Mr. J. McIntyre, J. Noble, and Messrs. Kennedy were awarded the honours as recorded; and Messrs. W. Carrick, gardener to E. H. Ryott, Esq., Gateshead, and A. J. Brown for *Primulas*. For *Lily of the Valley* Mr. J. McIntyre and Clark & Co., nurserymen, North Shields, were first and second in excellent condition. Hardy *Primulas* were as usual good, Mr. W. L. Thompson, gardener to E. Bell, Esq., Wolsington, was first; and Mr. McIntyre showed splendid *Cyclamens*. Table plants were as usual a strong feature, and competition great. Mr. J. McIntyre secured his usual place of first with *Aralia Veitchi*, *Pandanus Veitchi*, *Cocos Weddelliana*, *Croton interruptus*, *Aralia elegantissima*, and *Dracæna terminalis*. Mr. Ford and Mr. Noble following.

For twelve nine varieties of *Auriculas* (Alpines excluded) Mr. W. H. White, Killingworth, was first with *Pizarro*, *Lancashire Hero*, *Sapphire*, *Lord of Lorne*, and *Frank Simonite*. Mr. Garret, Hindling Hall, was a good second. Mr. White was also first in other classes likewise, and for twelve *Alpines*. For *Polyanthuses* (gold-laced) not less than four varieties, Mr. Wm. Sanderson, Walton, was first with *Earl Beaconsfield*, *William IV.*, *George IV.*, and *Big Ben*. Mr. Edward Adams, Swalwell, was second.

For twenty-four *Hyacinths* Mr. W. J. Watson, nurseryman, Fenham, was



first. The bulbs were prominently shown, and the foliage was firm and of a dense green colour. The best spikes were King of the Blues, Grandeur à Merveille, La Grandesse, Lord Macaulay, Lord Derby, Mont Blanc, Gigantea, and Von Schiller. Mr. J. McIntyre was second, and Messrs. Nairn & Sons, Pilgrim Street, third. For nine pots of single Tulips Mr. Watson was also first with Ophir d'Or, Joost Van Vondel, Keizers Kroon, Fahiola, and White Pottebakker. Mr. J. Short second. There were seven lots staged. For double Tulips Mr. Watson was again first, followed by Mr. McIntyre. The same exhibitor was also first for Polyanthus-Narcissuses; Mr. Short, gardener to Arthur Pease, Esq., Hammersknott, Darlington, and Mr. McIntyre following. There were six lots staged, which formed with the Hyacinths and other bulbs a most attractive display, occupying one side of the Corn Exchange.

Cut flowers and table decorations are generally good at the spring Exhibition, but this year they may be fairly said to have been better than ever. Mr. M. D. Thompson, gardener to Lindsay Wood, Esq., South Hill, exhibited a marvellous epergne for the drawing room. The top tier consisted of Cypripediums, Begonias, Aphelexis, and Spiræas; second tier, Maréchal Niel Roses, Oncidium flexuosum; base, Calla aethiopica, Anthurium Schertzerianum, Phaius grandiflora, margined with Davallia Mooreana, the top relieved with Adiantum gracillimum. Mr. S. Rutherford, Leazes House, Durham, was second with a very good stand indeed. Mr. Adams, Swallow, third. For a bridal bouquet Mr. Hutchison, 58, Collingwood Street, Newcastle, was first with a choice arrangement of Lily of the Valley, Niphetos Roses, American Tuberose, and Gardenia florida; Mr. J. R. Chard, Clapham Common, London, second. The last exhibitor was first for a hand bouquet, containing Bouvardia Hogarth, Stephanotis, American Tuberose, Pancratium, Carnation Goldfinger, and Smith's Yellow Rose. This was an effective bouquet. Twenty-two buttonhole bouquets were staged, Mr. Thomas Laidler, Old Benwell, being first with Maréchal Niel Rose, Spiræa, and Adiantum gracillimum. In the classes above referred to the competition is open to all, nurserymen excepted. Mr. F. C. Ford was first, and Mr. J. Noble second with Azaleas; Mr. Corbet and Mr. Noble with Cytisuses; Mr. Forsyth, gardener to Geo. Cairns, Esq., Monkton Hall, with Mignonette; and Mr. Short and Mr. F. C. Ford with Spiræas and Primulas. Hyacinths, Tulips, Lily of the Valley were all well shown. For an epergne Mr. J. Battenshy, Swallow, was first, and Mr. Whiting, Shotley House, second.

Among the exhibits not for competition was a fine stand of Daffodils from Messrs. James Dickson & Sons, Chester, in which Sir Watkin and General Gordon were prominent. Mr. J. Robson, Hexham, exhibited hardy Coniferae margined with the pretty golden Valeriana Phu aurea. Messrs. Wm. Fell & Co., Hexham, exhibited a collection of stove, greenhouse, and hardy plants, which were effectively disposed.

The first day the weather was cold and unpropitious, but the hall was densely packed at night. The Committee were present with their Chairman, who, along with the indefatigable Secretary, Mr. J. G. Gillespie, were doing all they could in sustaining the interest of the Show, and rendering assistance to exhibitors and the public. The Exhibition was admirably arranged by Messrs. Wilson, Balfour, and Gascoigne.

### CINERARIAS AND THEIR CULTURE.

WHEREVER Cinerarias of a good strain are represented by really well-grown plants they are certain to command a host of admirers at this season of the year, and I know of no class of plants likely to give such general satisfaction from January till April. Flowers of the improved types have such great size and substance as to leave but little to be desired in that direction. There is also such great richness in many of the colours in the way of purples, crimsons, and magentas as few other flowers possess. If we could only get a yellow as rich as an Allamanda, and a scarlet as bright as Vesuvius Pelargonium, the range of colour would then be well-nigh complete, but perhaps through the efforts of our skilful hybridists and enterprising nurserymen these may be obtained in the future. Plants in various sized pots are useful in many ways, either for supplying cut flowers or for house and conservatory embellishment; for the latter purpose they are invaluable, especially where large houses have to be kept gay, as when once the flower buds begin to show colour it is not at all necessary to keep the plants near the glass, for they will develop their blossoms when placed many feet from the glass as well as if kept close to it, which is a matter of some importance in large houses. With all these good qualities to recommend them, Cinerarias do not appear to be grown in such quantities as I think their merits deserve. True, we generally see a few plants in any garden where there is a glass structure, and in such cases there is only room for a few, but in larger establishments, where plenty of pits and frames are at liberty for growing them during the summer, and suitable structures for their reception in autumn and winter, they would, I am certain, give greater satisfaction if enough were grown to produce a distinct feature at a certain time than can be obtained by the various mixtures of plants that are often grown, and which, in many cases, cannot have the special treatment the different classes require. The culture of the plants under notice is by no means difficult; nevertheless, like most others, to have them in really creditable condition they require a considerable amount of time spent upon them, and constant attention to the various details connected with their cultivation. Cinerarias are great favourites here, and are consequently grown rather extensively, some three or four hundred plants being required, hence my reason for supplying an account of their treatment, thinking it might be interesting to the readers of the Journal, and also hoping it may be the means of inducing others to grow them in greater numbers.

#### SOWING THE SEED AND TREATMENT OF YOUNG PLANTS.

The first sowing, to supply plants for flowering in 9 and 10-inch pots, is made about the beginning of April, and another sowing at the end of May to obtain good useful plants in 5 and 7-inch pots. Our practice is

to sow in ordinary seed pans, about 3 inches in depth. One crock is placed over the hole at the bottom, a layer of medium-sized ones over that, which are in turn covered with very small crocks, so as to leave the surface perfectly level. Over this are placed the rough parts of the leaf soil that has been used in preparing the soil in which to sow the seeds. After this operation is completed the rough material over the crocks should be  $1\frac{1}{4}$  inch from the rim of the pan; that will allow room for the soil and a quarter of an inch between it and the glass that should be placed over the top of the pan. The soil we use for the purpose consists of equal parts light loam and good sweet leaf soil free from insects, and little finely powdered charcoal and fine sand added, and the whole passed through the quarter-inch sieve, and well mixed together. A portion is then pressed firmly into the pan already prepared, a little of the same kind of soil is mixed, passed through a fine hair sieve as it is held over the pan, and is then made smooth and firm, which leaves a good surface on which to sow the dust-like seed, but before doing so it is a good plan to place over the soil a very slight sprinkling of white sand shaken through the hair sieve. The seeds can then be seen much better as they are scattered on the surface and consequently can be sown more evenly. It is a great mistake to sow the seeds thickly, because the young plants become too much crowded before they are large enough to be pricked off. After the seed is sown we give a slight covering of finely sifted soil, press it slightly with a smooth board, and give a slight watering through a very fine rose. A square of glass is then placed over the pan, which is placed in a warminery and shaded with moss or paper till the seeds show signs of germinating. The shading should then be removed, and as soon as the young seedlings become injured to the light place them in an open position near the glass, where they will require no shading till pricked off. I have found it a great advantage to keep the square of glass still over the pan, but it should be kept a little above the rim by means of two pieces of crocks so as to allow a current of air to pass over the plants.

Treated in this way the plants will make rapid progress, and as soon as they are large enough should be pricked off 1 inch apart in shallow well-drained boxes, in soil similar to that in which the seeds were sown, pressed firmly and finished off with a tbin board, and as each box is filled with young plants, watered through a fine rose to thoroughly settle the soil about the roots. A capital place for them at this stage is around the sides of a Melon pit where Melons have been recently planted, fixing shelves to keep them near the glass, and shading from bright sunshine. When the plants have grown sufficiently for the leaves to touch each other, and before they become crowded, place them into small 60-pots. At this first potting do not press the soil too firmly, and take great care not to wring the collars of the plants, or they will be liable to die, especially if by any means they should get too wet. This rule should be observed at all subsequent pottings, as many Cinerarias are lost from this cause alone, although it does not account for the mysterious dying of plants in various stages as is often seen. These causes I will refer to later on.—A. DUNKIN.

(To be continued.)



#### KITCHEN GARDEN.

THE weather continues very changeable, and we have not made the progress in vegetable planting we anticipated since the frost left, but we would rather be a fortnight late in sowing than attempt it when the soil is unfit, as late-sown crops always prove satisfactory, but those sown in wet soil are the reverse.

**RADISHES.**—In large gardens these must be supplied all the year, or as near that as possible; but in small ones they are only cultivated to come in from early summer until late autumn, and where this is the case a sowing of French Breakfast should be made at once. They will grow quickly now, and the first of them will be ready for drawing in from three to four weeks. From the time the first are gathered from a patch until they become stringy is generally about a fortnight, and no more should be sown than there is likely to be a demand for during that time, and by sowing the same quantity once a fortnight a constant succession of tender sweet roots will be produced. Varieties of Radish are very numerous. Many of them are pretty, and all are good when properly grown. The Turnip-rooted ones are the best for shallow soil. In the early spring a sheltered sunny spot where the soil is rather light suits them best, but as the weather becomes warmer a cool soil and situation should be given them. They delight in a rich soil, but dislike rough lumps of manure.

**LETTUCES.**—A patch 2 feet or 3 feet square sown with seed will furnish many scores of plants, and it is a mistake to sow them in too large quantities, as they are apt to run to seed early in hot weather, and small sowings made often is the best way to secure a constant supply of tender crisp heads. They should have rich soil at all stages of their growth, and care must be taken that they are not eaten by snails. Lettuce sown last autumn and wintered in a small state to supply heads early in spring, are now almost ready for cutting, as they were protected during the winter, and others to succeed them which were raised under glass in



spring should be planted out as soon as possible. As yet they should be put in sheltered positions, and none be put out which are not well hardened. Our favourite place for Lettuce culture in summer is on the top of the ridges between the Celery trenches.

**TOMATOES.**—The earliest plants were shifted into pots and boxes some time ago. Some of them were placed on the back shelf of a Pine pit, others into the Cucumber pit, and some in a cool house. Those in the Pine stove are heavily laden with fruit, those with the Cucumbers are not quite so forward, and the others in the cool house are later still, but they are very robust, and will probably be the best in the end. The early ones now maturing their fruit are being kept very closely pinched in, and liberal quantities of liquid manure are given them. This is a sure way of making the fruit swell quickly and to a good size. Young seedlings which are being brought forward should be potted singly before they are injured by being crowded. Others in small pots with a great many roots should be given more root room, as it is very injurious to stunt them early in the season, or when they should be growing freely. Plants intended for open air culture are about 1 foot in height, and they must be hardened by being placed in a cool frame as soon as possible. The great secret of successful open air Tomato culture is to have strong healthy plants to deal with at planting out time, and unless this is the case it will be so late in the season before the fruit ripens that the crop will be light and of short duration.

**CARROTS.**—Those sown in the open air before the severe frost of March have shown up very well of late, and the border of Early Horns is all right, but the main crop has not been put in yet, and it should be sown on an early date. James' Scarlet Intermediate or others of this type is the only variety we grow for the main crop, as the roots do not require a very deep soil, while in quantity and quality they are all that could be desired. This crop should have one of the best spots in the garden, and previous to sowing the ground should have a good dressing of soot, and then fork it in. The rows should be from 15 inches to 18 inches apart and 2 inches in depth. After covering the soil should be finely raked, and then rolled hard. Good roots always follow from this practice, and insects are not half so troublesome in the soil when it is firm than when very loose.

**BROCCOLI.**—Make two sowings of these, and the first may be put in now. We have sown seed of Veitch's Autumn Protecting, Oshorn's Winter White, Backhouse's, Cattell's Eclipse, Leamington, and Sutton's Late Queen. Other sorts will be sown in a day or two, and part of each will be sown in a fortnight or three weeks hence. Good soil is very necessary to produce healthy free-growing plants, and they may be sown in rows across a border or in patches anywhere. We sow ours in a narrow border along the side of one of the kitchen garden walks, and they always do well. We prefer them in rows to broadcast, and make the former from 8 inches to 10 inches apart. The seed should not be sown thickly and about 1½ inch below the surface.

**PARSLEY.**—Make a good sowing of this, as the plants raised at this time will keep a supply of the much-valued leaves until next spring. We never found Parsley fail where Carrots succeeded, and if several rows are put in at the same time as the Carrots a good supply will soon be forthcoming.

**VEGETABLE MARROWS.**—The remarks above on ridge Cucumbers apply to these. Where quality is desired sow the Pen-y-byd variety. If size is the object grow Long White.

#### FRUIT FORCING.

**VINES.**—*Early Houses.*—Examine the Grapes, and if any of the bunches are too crowded remove a few of the least promising berries with a pair of finely pointed scissors. Keep the soil of the inside border in a moist state until the Grapes are ripe. Choose a bright fine morning as the best time for watering, and admit air rather freely, so that all superfluous moisture will disappear before ventilation is reduced for the day, and to prevent its escape from the soil a little fresh mulching or short stable manure may be spread on the surface. Ammonia arising from the stable manure in combination with stimulating liquid to the roots will keep red spider in check. It, however, will attack even when the most effectual precautionary measures are taken, and to keep it from spreading there is no better plan than to carefully sponge the leaves with a soft soap solution, 2 ozs. to the gallon of water, which, though a tedious, is an excellent remedy for its removal. Painting the hot-water pipes with sulphur brought to the consistency of thin paint with skim milk is also a good remedy, but it is well to apply it to the return pipes only, and not to give a very thick coating. The fumes of sulphur are very injurious to delicate-skinned Grapes, particularly so to Frontignan and Muscats. Ventilate night and day when the berries begin colouring, and increase it as they approach ripeness, but fire heat must not be entirely discontinued, though the temperature is to be gradually reduced, sufficient being afforded to maintain a minimum of 60°, as the Grapes will improve in quality after they are considered fit to cut, the last out being often better than the first.

*Muscats.*—Houses of these and other shy-setting Grapes when in bloom will require a high temperature by day, with a good circulation of air and a fair supply of atmospheric moisture to prevent the young foliage suffering under the influence of bright sun. Fertilise with Hamburgh pollen if it can be obtained, and in the middle of the day when the atmosphere is buoyant. A temperature of 70° at night is easily maintained in efficiently heated structures, but with roots active a temperature of 65°, or even 60°, with a little air is more satisfactory than hard firing to maintain a given temperature in all weathers.

*Late Houses.*—Make the most of solar heat for pushing on late Vines as Lady Downe's, as all long-keeping Grapes cannot be over-ripened if they are to be kept fresh for some months after they are removed from the Vines. Commence ventilating early on fine mornings, and allow the heat to rise to 80° with increased ventilation and plenty of moisture, closing in time for it to rise to 90° from sun heat on fine afternoons. A night temperature of 60° will be sufficient until the Grapes flower, when 5° more will be necessary to increase the length of the bunches and produce conditions favourable to the setting of the fruit. All late Grapes do best when planted inside the house with the run of outside borders, which should be elevated, well mulched, and exposed to all the rain that falls from the time the Grapes are cut in January until the succeeding crop is ripe in the September following. As a rule, all late Grapes require artificial impregnation. For removing the glutinous substance from the stigmas a camel-hair brush is best, and the matter allowed to remain will prevent the berries from setting, whilst its removal insures their setting freely.

**CUCUMBERS.**—These are now plentiful in most gardens; the chief object is, therefore, to maintain a good supply throughout the season, which can easily be done by attending to the stopping, thinning, and cropping of the plants, with an occasional top-dressing of light loam, to which a third of short well-decomposed manure has been added. Copious supplies of water must be given to the roots when necessary, some requiring it daily, others bi-weekly, weekly, or less frequently, according to special circumstances, as plants growing in narrow borders with plenty of drainage, and having the bottom heat supplied by hot water pipes, with the plants in full vigour there is little fear of too much water being given, whilst with plants growing upon a bed of fermenting materials, and having more scope for root-action, the plants require very little water at the roots. Syringe twice a day during bright weather. Ventilate freely on all favourable occasions, avoiding cutting winds, striving to secure a short-jointed and consolidated growth. Keep the plants free from the attacks of red spider, green and black aphides, by a proper use of the syringe.

**MELONS.**—The earliest fruits are approaching maturity, and the plants will need syringing less frequently; and in damping the plants and house avoid wetting the fruits, as that would cause them to crack; in fact, a somewhat dry atmosphere is essential when the fruit is ripening. To have highly flavoured and finely finished fruit the cleaner and healthier the plants are at the ripening period the greater is the probability of its being effected. Besides, when care is taken to keep the plants healthy a second crop may be allowed to set, which by the time the first crop is ripe will be considerably advanced in swelling and without any detriment to the first, all male and female flowers being removed after a sufficient number of fruits have been secured for the crop, with the usual stopping attended to. After the ripe fruit is cut stir the surface of the bed, tread, and add more soil if necessary, watering with clear tepid water thoroughly, and follow at once with a copious supply of liquid manure. Keep well syringed, and a full second crop of fine fruit will be obtained. Melons in successional houses, pits, and frames will require daily attention in stopping, tying, and thinning of the shoots and impregnating the blossom in the middle of the day when the pollen is dry, acting upon all expanded flowers at the same time in order to secure a regular set, so that the fruit left may still be distributed regularly over the principal shoots of each plant and swell together, and so insure uniformity in size. Plants should be prepared for planting in pits and frames as they become cleared of Potatoes, &c. Houses that have been used for winter Cucumbers, and these being dispensed with, the houses should undergo a thorough cleaning preparatory to planting with Melons. Wash the woodwork with soap and water, using only clear water for the glass, and well limewashing the brickwork. Use good turfy loam, with a tenth of old mortar rubbish and a sixth of road scrapings, and if the loam be very stiff some charcoal may be added to render it more porous, but burned clay in the same proportion as the road scrapings is preferable. This should be placed in a few days to warm; press the soil firmly around each plant. Sow for succession according to requirements.

## THE BEE-KEEPER.

### QUEEN-RAISING.

HOWEVER much bee-keepers may differ on many points connected with bee-keeping, on one point at least they are at one, and that is, that in order to have all hives in a prosperous condition young queens are essential.

Among the old bee-keepers not much attention was paid to queen-raising, the stocks swarmed in the natural way, and old and young queens were consigned indiscriminately to the sulphur pit, and the heavier the stock at the end of autumn the more certain its doom. Just as we should not expect to get strong lambs from a worn-out ewe, so neither can we expect to get populous colonies from aged queen bees. The duration of the life of a queen bee depends very much on the number of eggs she lays in a season. In a small hive a



queen may live four or five years, and may still lay a large number of eggs, but in large hives she is generally useless after the second year, and unless she is of some particular strain, either English, foreign, or hybrid, we always get rid of a queen at the beginning of the third season. In a small apiary queen-raising hardly pays, as it is cheaper to buy young queens, or, if we can get the chance, the second swarms or casts.

But as our apiary consists of some twelve to twenty hives, we always rear our queens in the following manner. Having carefully selected the strain or strains we wish to perpetuate, we place bars containing sheets of foundation in the centre of the brood nest, but not before the middle of May, or even later if the weather is cold. We then select one of the strongest of our hives, have a small artificial swarm, and remove the old hive to a new stand, giving the swarm two or three bars of brood from the old hives or from others.

The queenless bees immediately start several queen cells, and on the fourth day after they have been deprived of their queen we cut out all the queen cells and place in the centre of the brood nest two or more bars of selected brood, and in order to induce them to make queen cells make slits in the new comb containing the eggs and grubs. Some of the Italian queen-raisers carefully remove alternate eggs, but we have never tried the plan, though, no doubt, it is a good one, as the economical bees do not, unless driven by stress of hunger, destroy eggs. If there are as many queen cells as are wanted, we do not add any more brood for queen-raising, but keep the hive populous by giving them another bar or so of brood. Sometimes it happens that only a few queen cells are started, and in that case we give the bees another bar or so of selected brood, and so get the required number of queen cells.

When ten days have elapsed from the time the queen was taken away, we proceed to make small nuclei, either by making artificial swarms without a queen but with brood, or by putting the nuclei on the stands of the old hives and, of course, giving them some brood. In two days time we insert a queen cell in each nuclei, taking care to cut quite clear of the queen cell. In the course of a few days the young princesses will be hatching out, and great care has to be taken that the bees do not follow them in their nuptial flights. Still if the nuclei have brood, it does not often happen that all the bees leave the hive, but if they do the swarm has to be taken and replaced.

During the course of the next few days we examine the nuclei occasionally to see if the young queens have begun to lay, which is carefully noted in a diary. The fertile queens are then introduced, but we will defer the method of queen introduction to a future article.—A SURREYSHIRE BEE-KEEPER.

### THE EFFECTS OF WINTER ON BEES.

THE present is perhaps a most fitting time to lay before your readers the effect the protracted winter has had upon bees, and so give them an opportunity of comparing the results of their own experience with ours, thereby enabling them to rectify evils or to pursue and establish a system based upon common sense, which they have found to work satisfactorily towards preserving bees and to the profit of the bee-keeper. Although it is now the 2nd of April there has only been two days that the temperature was high enough to feed bees with safety without causing loss, owing to the cold and windy state of the weather. The two days mentioned were occupied and required by the bees to thoroughly air themselves. None of my stocks required feeding, therefore was not in the least put about, relying upon the arrangements I made in autumn and past experience, which, I am glad to say, have no apprehensions but that they are safe and will continue so for weeks yet without any assistance.

I have had one death only. It was a pure Syrian, a nucleus containing very few bees; but several nuclei of Carniolians with fewer have wintered well and are promising well. Another pure Syrian lost most of its bees, but is busy cleaning out, carrying pollen—or rather pea meal, for as yet few flowers are out, while others from the extreme cold refuse to shed their pollen or open up their anther cases. The pure Syrians apparently cannot stand

our climate. The crosses do, and seem no way impaired for their work by the accident.

With the above exceptions all the rest of my hives have wintered well, with less loss than I have witnessed in milder winters, every one without exception having bred since the end of the year, and every one has much of the youthful element and in a fit state to store surplus honey, appear when it may. Those in deep hives as usual remained quietest during winter, most of them never sought out during the snow. Had the spring been earlier I should have reduced the size of my Stewarton hives by removing the under box, but already they occupy the two upper ones, and to lessen the hive now would be courting failure.

Much stress is put on double-cased hives by some. With me there is no difference; if there is, the single-cased hives are the best when well protected. Deep hives, having always the honey above in the natural warm strata, it never suffers from cold and damp as it does in wide flat hives, hence the bees have always a meal of a proper heat of wholesome honey, having access at all times to it through a congenial atmosphere; never requiring to creep aside to the outer combs in the cold where death awaits them, as is the case with those on the combination principle; not requiring to travel round the combs or having "winter passages" artfully cut through them before they can reach their stores, as the flat hives have; and the bees, from the excitement brought about by their attempting to raise the heat, by eating cold honey and entering a cold atmosphere, fly out every feed they take or movement they make. Thus bees in flat hives are decimated or die from starvation when they cannot travel to the adjoining combs for honey, while those in deep hives are safe and healthy.

From time immemorial bee-keepers in Scotland have always held that hives to be healthy must have their combs at right angles to the entrance; and Mr. Woodbury, than whom there is no better authority, put this to a thorough test many years since, and recorded his experience in this Journal to the effect that bees to be healthy ought to have their combs situated at right angles to the entrance. In all he said on that subject I agreed with him, and thought it a foregone conclusion. But a new cra in bee-keeping dawned upon us, and we were told we were on the wrong track, and that to be successful hives having their combs parallel to the entrance should be used. In order to satisfy bee-keepers and prove the contrary to them I had several hives with their combs so arranged, but just as Mr. Woodbury explained, and in accordance with my previous experience, the bees refused to live healthy during winter, so I abandoned the idea for ever.

There has been a great mortality amongst bees this year, and I have exerted myself a little to get at the facts, such as what condition were the hives in and of what sort were they. The first news of disasters reaching me were the bees were located in combination hives, the bees had suffered from dysentery, and now all were dead. I have several hives of that sort under my superintendence for an acquaintance: they, too, have paid the debt of Nature prematurely. Other casualties arose from keeping the bees on a stinted allowance of food, so that the "orthodox" plan of stimulative feeding and spreading of the brood should be carried out, but the bees had succumbed for want before the weather was favourable for feeding. Others having hives similarly provided saved the bees from dying inside by feeding them, and thereby bringing them out to perish amongst the snow. Whether these salutary lessons will prevent their erring again remains to be seen; but one thing is certain—had they taken my advice to put their bees up in autumn with 30 lbs. of honey there would have been fewer deaths amongst them than has been this arctic winter, and we have no assurance that the like will not occur again. We have experienced similar winters before, and we may expect them again.

There is still another singular notion bee-keepers have in regard to the size of the hive and its condition. I read lately the cogitations of an advanced bee-keeper, "Ideal of a stock when ready for supers is that it should be filled with brood or eggs from side to side and top to bottom, excepting at most a few days' supply of food in case of a serious reverse of weather." To my mind this is the rock many bee-keepers wreck themselves on. A hive should never be in such a state. It should be large enough to hold at least 30 lbs. of honey and at least one comb, and better two, of pollen over and above what will hold 60,000 eggs or larvae, with additional space for water and unsealed honey, which every healthy and progressing hive has. Such a hive as that, containing a healthy, fertile, and prolific youthful mother, is our ideal of the only hive that will give satisfaction.

The same writer too, as well as others, seems of the opinion that whenever you have a sealed comb in the hive it ought to be uncapped and placed in the centre of the hive to be filled with eggs. But why all this waste and labour? Surely it would be far better for all purposes to keep the queen from the supers, keep the bees breeding, and allow no waste of eggs, &c., by having the hive of a



proper size at first, and save the waste of honey and strength of bees. If bees are restricted in carrying on the internal economy of the hive to the full extent for the purpose of getting all the honey stored in supers, which is bee-keeper's arguments, it is but another way of "killing the goose that lays the golden egg." The hive that allows of a surplus of 40 lbs. in the stock hive will collect far more than that extra than the restricted ones, while the honey is superior. If our bees have come through the winter unscathed my flowers have not. Roses are browned to the ground, Primulas and choice Polyanthus, &c., killed, and the hardy Sedum fabarium is nearly killed.

Wasps seem likely to be very numerous this season, notwithstanding the cold summer and autumn. Some piled wood I saw turned over lately had many thousands ensconced between the boards. In years long past I have gathered shovelfuls from similar places. If gardeners would pile up in August some boards in this fashion, so that the wasps could creep in under, I could not suggest a more destructive plan on wasps and with less expense and trouble than the above. The only caution required is that the boards are under cover but open at the sides.—A LANARKSHIRE BEE-KEEPER.

### BEE MANAGEMENT.

I SHALL be grateful if you will kindly answer a question or two on supering bees. I have some wood boxes which I have used as supers, with glass on one side, with lid to close down. They are 12 $\frac{3}{4}$  inches by 11 $\frac{3}{4}$  clear inside, by 7 inches deep, and will hold exactly eighteen sections—that is, touching each other, except with just room enough for a piece of zinc to go between each row lengthways. Is it necessary to have a passage between the rows lengthways for the bees to pass, or crossways? Of course they will be able to pass underneath, as the sections will rest on longitudinal bars, and they can also pass between section and section top and bottom. I propose to have one side of box, opposite glass, to let down by means of two small hinges, and fasten up by hook on each side to facilitate removal of sections. I have never used sections, merely these boxes placed on top of other boxes as supers. My lower boxes are 16 inches square by 11 inches deep, clear inside, and stand on two rows of shelves inside a house with 6-inch clay walls and thatched roof; the bees pass out through the wall, and can't enter the house. Why I am about to try sections, is the difficulty in making the bees work up into these plain boxes. Any remarks you may kindly make will be thankfully read in the *Journal of Horticulture* by yours truly.—H. T. H.

[The boxes are a very unfortunate depth—too deep for one tier of sections, and not deep enough for two; they may, however, be cut down to the required depth without any great difficulty. The sections it is intended to use appear to be the ordinary 1 lb. ones, measuring 4 $\frac{1}{4}$  by 4 $\frac{1}{4}$  by 2. It will be a problem not very easy to solve how to place eighteen of these sections in a box measuring 12 $\frac{3}{4}$  by 11 $\frac{3}{4}$  inches, inside measurement. They may be placed, as intended, three abreast, but six rows will in that case be necessary, and six multiplied by two making twelve, and room for separators having to be left, it is quite an impossibility to put more than five rows in such a box. This is, of course, not material, but it will be better to give up the idea of a hinged shutter, and place a loose board along the outside surfaces of the extreme sections in the same manner as a separator, but not admitting the egress of any bees. The lid may be dispensed with, and some warm covering provided to retain the heat and prevent the escape of bees. The space left by the longitudinal bars upon which the sections stand, if such bars are made at least three-eighths of an inch thick, will provide a sufficient means of entrance to the sections, and no other will be required. Separators cut in the manner described will be suitable provided they are cut so as to leave a bee space—that is, room for the passage of the bees from section to section without difficulty both at top and bottom. Many bee-keepers leave half an inch, some a little more, some a little less.

The necessity for the sides of the boxes, which it is intended to transform into racks, and the sections to be co-equal in height, will be very evident when it is remembered that as soon as one rack is taken possession of by the bees, and comb-building is going on extensively, another must be placed either upon or beneath the one already in the hive and being worked by the bees. The glass end will be useful to ascertain the condition of the rack, but it is well not to forget that the outside ones are those last sealed, and are, therefore, not quite a sure index to the state of inner combs. The shutter is an awkward contrivance, and the loose board is for many reasons preferable, the bees will not fasten the sections together so as to make manipulation difficult. The grand secret is to have well made and good fitting racks, and then the necessity being taken away, propolis is reduced to the least possible amount. The hives are not of the fashionable dimensions, but ought to yield a good harvest of super honey in a season of average honey weather.

It is a mistake to imagine that bees will enter and work sections more readily than large supers. Rather the reverse is the fact. One of the most frequent objections urged against the use of sections is the apparent unwillingness of the bees to enter them. Few instances—in my own observation none—occur in which bees refuse to enter supers of any description if the stock is in a proper condition for receiving an extension of room, and the weather is favourable. Strong stocks filled with brood and bees and honey will enter supers, weak ones will decline to annex

new territory while the old one is only partially occupied. Crowded populations want extension, not thin ones, which possess already more room than they are able to fill. Those who cannot get bees to enter supers placed at the proper time fail because their stocks are too weak. Strong stocks are absolutely essential in profitable bee-keeping. The house in which the hives are placed being formed of clay and thatched will be warm, but it is not a necessity to have such an elaborate dwellinghouse, and there is a danger of mice, moths, and other bees' enemies harbouring in it and committing depredations. With care no harm will happen, with negligence great mischief may be done in a short time. One point is often overlooked in such constructions, and that is that insufficient alighting boards are too often given, with the result that many bees are destroyed which might if a proper projection had been attached have lived to work for weeks instead of dying thus within sight of home. Attention to this point will give great satisfaction to anyone who has observed the bees formerly in rain attempting to reach the board on which, mainly owing to its very slight projection they were unable to gain a foothold, pass in with safety.—FELIX.]

RUTHERGLEN HORTICULTURAL AND APIARIAN SOCIETY.—As the name of this Society indicates, the Committee recognise the natural connection that exists between flowers and bees, and while prizes are offered for fruit, flowers, and vegetables, apiculture is encouraged as well. There are twelve classes in this section, prizes being offered for honey, hives, appliances, comb foundation, &c., no less than eight silver medals being provided as awards to the most successful exhibitors, including the Highland Society's medal for the best and largest display of run honey and honeyscomb. The prizes appear to be open to all, and we trust the twin exhibition to be held on September 3rd will be very successful. Mr. Ebenezer M'Nally is the Honorary Secretary.

### TRADE CATALOGUE RECEIVED.

Thomas Pointer, Smallwood, Stoke-on-Trent.—*Catalogue of Dahlias Plants.*



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CORRESPONDENTS.—We desire to assure those of our correspondents whose letters and communications are not promptly inserted that they are not the less appreciated on that account. Our pages are practically filled several days prior to publication, and letters arriving on Wednesday morning, except by special arrangement, are invariably too late for insertion. The delay in the publication of some of these is not of material importance, but reports of meetings and shows held a week previously lose much or all of their value if not received in time to appear in the current issue.

Size of Lawn Tennis Courts (F. W.).—The length of a tennis court is 78 feet; width for a single court, 27 feet; double, 36 feet.

Everlasting Flowers from Seed (J. A.).—*Ammobium alatum* seed may be had from all the leading metropolitan and provincial seedsmen who advertise in our columns. We do not think seed is sold of the other you name, but plants can be had from nurserymen. *Acroclinium album* and white *Helichrysums* are easily raised from seed, which is sold by nearly all vendors of flower seeds.

Royal Horticultural Society's Reports (Mrs. P. E. W.).—The reports in question are not published at this office. You had better write to the Secretary of the Society at South Kensington, and he will give you information on the subject. Some of the reports, we believe, are not sold, while others are.

Lime Rubbish for Vine Border (J. C., Somerset).—We certainly do not consider you troublesome; it is a pleasure and not a trouble to us to impart information that may be of service to inquirers. You have probably decided rightly in making a new border and planting young Vines next spring. Save all the lime rubbish, as it will be of great service in making the borders. Be careful in excavating and concreting that you do not



make a water tank. Concreting is worse than useless if not made with a sharp slope and drains provided for the free exit of water. You had better describe the site and subsoil some time before commencing operations, and we shall be glad if we can give you further advice on the matter.

**Mildew on Strawberries (A Reader).**—The great difference between the day and night temperatures and the action of cold on the tender foliage with, at the same time, a damp atmosphere favours the spread of mildew, and there are probably sharp currents of air through your improvised frames. As you have the means of shading the plants in the daytime you can also cover the glass at night, thereby arresting radiation and securing a more equable temperature. We suspect you do not admit air soon enough in the morning. Early ventilation and early closing is the right principle to adopt. On the first faint signs of mildew dust the foliage with sulphur, keeping it off the fruit. There is a fault somewhere in your method of ventilating. We will send your letter to Mr. Bardney as you request his opinion.

**Boiler Leaking (Horace).**—Ten years is not an average length of time for a saddle boiler to last. We presume the boiler is a cast iron one, and if so it will be difficult to repair. If a wrought iron rivetted boiler it would be more readily repaired; the advisability, however, of repairing can only be determined by an examination of the boiler, and ascertaining the nature and extent of the damage. If the boiler is so damaged as to cost a considerable sum in repairs, being thin from corrosion, then we should decide in favour of a new boiler. Select one of the improved form of saddle, those with a waterway check end and side flues being preferred by many gardeners. A wrought iron rivetted boiler is more costly than a cast-iron one, but is durable, repairable, and economically heated.

**Violets (Young Gardener).**—Violets are now so numerous and the varieties so much alike, especially several of the Neapolitan varieties, that it is extremely difficult to make out their distinctive characteristics from a plant in full foliage and flower, and the difficulty is still further increased when only leaves and flowers in a cut state are examined, whilst it is impossible to be definite about their names when flowers only are submitted. The darkest coloured flower of those you sent is probably New York (syn., Marie Louise, of some), the flowers of which are irregularly splashed with red more or less at the base of the petals. It is the best of all the Neapolitan forms of Violet for autumn and winter to spring flowering. The light flower is probably De Parme, the very best of the light coloured forms of Neapolitan, and very distinct. The flowers, however, were much crushed in passing through the post. If De Parme the plant will be very compact in growth, and flowers will commence appearing in September; but if Neapolitan (old variety) it will not flower much until spring, and be prone to throw off many runners. The flowers are not very dissimilar, but the De Parme is much the best. The true variety of Marie Louise has a similar flower—viz., pale lavender with a white eye, and it flowers profusely from September to April, and is one of the very best and scarcest of Violets, being difficult to keep true through its sporting into the varieties that have the red splashing on the petals near the eye—the only difference between them. Judging from the flowers in the small bunches you sent us without foliage, we think they are as stated—viz., New York and De Parme, dark and light respectively.

**Making Vine Border (C. C. C.).**—If there is no water in the sand beneath the loam the necessity of drainage will not arise; but if there be water, as there frequently is in sand, it will be necessary to put in pipe drains so as to carry off the superfluous water, the drains having proper fall and outlet. In addition to these you will require a foot in depth of drainage, which should consist of brickbats or other material broken up, putting the roughest at bottom and smallest on the top. It would be well to cover the drainage with a layer of turf grass downwards. By mixing a sixth of old mortar rubbish with the strong loam and a similar quantity of horse manure, is likely to make a suitable compost for Vines, the whole of the materials being well incorporated. If the soil is deficient of gritty matter, add a sixth of road scrapings. Two feet six inches is a suitable depth of border. The whole of the soil will need to be taken out, thrown in a heap for mixing with the other ingredients. You will require five barrowfuls of the loam, and one each of lime rubbish, horse manure, and road scrapings, to which you may, if you do not mind the expense, add half a bushel of half-inch bones, the whole to be thoroughly incorporated. If you can procure turf from a pasture where the soil is a light loam, and taken off about 3 inches thick, it would be preferable, omitting all the other ingredients except the lime rubbish and bones, and putting in a tenth only of the lime rubbish and half a bushel of bones, the turf being chopped up moderately small, and the whole well mixed. Good Grapes, however, are grown in ordinary soil, the chief thing is to make sure of thorough drainage, and to add sufficient lime rubbish and gritty matter to keep the soil open. Cow manure will be valuable as a surface dressing, but it ought not to be mixed with the soil. A 3 foot width of border will be sufficient for the first year. You may plant the Vines in May, and properly attended to they will make strong canes by autumn. The moss litter manure from stables is suitable for growing Mushrooms. A grower informs us that he had an abundant and paying crop from the employment of such litter on which hatters had stood, the beds being outside, and the instructions followed as given in "Mushrooms for the Million." You may have an abundant crop of Tomatoes in the house this season with good management.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (R. P.)—We cannot tell from the small withered flower and imperfect description, but perhaps it is a *Streptocarpus*.

#### COVENT GARDEN MARKET.—APRIL 14TH.

BUSINESS steady, with Grapes in demand now old samples are nearly finished.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	3 0	to 3 6	Peaches .. .. .	0 0	to 0 0
" Canadian ..	12 0	20 0	Pears, kitchen ..	1 0	1 6
Cobs, Kent ..	27 6	30 0	" dessert .. ..	0 0	0 0
Figs .. .. .	0 0	0 0	Pine Apples English ..	1 0	1 6
Grapes .. .. .	2 6	8 0	Plums .. .. .	0 0	0 0
Lemons .. ..	8 0	10 0	St. Michael Pines ..	2 0	6 0
Melon .. .. .	0 0	0 0	Strawberries .. ..	0 6	0 9
Oranges .. ..	100 4	0 6			

#### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	1 0	to 0 0	Lettuce .. .. .	1 0	to 1 6
Asparagus .. ..	2 0	8 0	Musbrooms .. ..	0 6	1 0
Beans, Kidney ..	2 0	3 0	Mustard and Cress ..	0 2	0 0
Bcet, Red .. ..	1 0	2 0	Onions .. .. .	0 3	0 0
Broccoli .. ..	0 9	1 0	Parsley .. dozen bunches	2 0	3 0
Brussels Sprouts ..	6 0	8 0	Parsnips .. .. .	1 0	2 0
Cabbage .. .. .	3 0	4 0	Potatoes .. .. .	4 0	5 0
Capiscums .. ..	1 6	2 0	" Kidney .. cwt.	4 0	5 0
Carrots .. .. .	0 3	0 4	Rhubarb .. .. .	1 0	2 0
Cauliflowers .. ..	2 0	3 0	Salsafy .. .. .	1 0	0 6
Celery .. .. .	1 6	2 0	Scorzonera .. ..	1 6	0 0
Coleworts .. doz. bunches	2 0	4 0	Seakale .. .. .	2 0	3 6
Cucumbers .. ..	0 3	0 8	Sballots .. .. .	0 3	0 0
Endive .. .. .	1 0	2 0	Spinach .. .. .	3 6	8 0
Herbs .. .. .	0 2	0 0	Tomatoes .. ..	1 0	3 0
Leeks .. .. .	0 3	0 4	Turnips .. .. .	0 4	0 0

#### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	9 0	to 18 0	Ficus elastica ..	1 6	to 7 0
Arbor vitae (golden)	0 0	0 0	Ferns, in variety ..	4 0	18 0
" (common) .. ..	6 0	12 0	Foliage Plants, var.	2 0	10 0
Arum Lilies .. ..	9 0	18 0	Genistas .. .. .	10 0	12 0
Azaleas .. .. .	24 0	42 0	Hyacinths .. ..	5 0	9 0
Begonias .. .. .	0 0	0 0	Lilies of the Valley, in		
Bouvardia .. ..	0 0	0 0	clumps or pots, per doz.	15 0	30 0
Cineraria .. ..	10 0	12 0	Marguerite Daisy ..	8 0	12 0
Cyclamen .. ..	12 0	24 0	Myrtles .. .. .	6 0	12 0
Cyperus .. .. .	4 0	12 0	Palms, in var. ..	2 6	21 0
Dracena terminalis, dozen	30 0	60 0	Pelargoniums, scarlet, doz.	6 0	9 0
" viridis .. ..	12 0	24 0	Primulas, single, dozen	4 0	6 0
Erica, various .. ..	12 0	24 0	Solanum .. .. .	8 0	12 0
Euonymus, in var. ..	6 0	18 0	Spiraea .. .. .	12 0	18 0
Evergreens, in var. ..	6 0	24 0	Tulips .. .. .	12 pots	6 0

#### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. 12 bunches	0 0	to 0 0	Lilium longiflorum, 12 hlms.	0 0	to 0 0
Acacia (Mimosa), Fr., per			Lily of the Valley, 12 sprays	0 9	1 0
bunch .. .. .	1 0	1 6	Marguerites .. 12 bunches	6 0	8 0
Arum Lilies .. 12 blooms	4 0	6 0	Mignonette .. 12 bunches	3 0	6 0
Azalea .. .. .	12 sprays	0 6	Pelargoniums, per 12 trusses	1 0	1 0
Bouvardias .. per bunch	0 0	0 0	" scarlet, 12 trusses	0 9	1 9
Camellias .. 12 blooms	2 0	5 0	Poinsettia .. 12 b'ooms	0 0	0 0
Carnations .. 12 blooms	1 0	3 0	Roses (indoor), per dozen	3 0	9 6
Chrysanthemums 12 blooms	0 0	0 0	" Tea .. .. .	2 0	4 0
" 12 bunches	0 0	0 0	" red, French .. dozen	2 0	4 0
Cyclamen .. doz. blooms	0 4	0 9	Spiraea .. .. .	12 sprays	1 0
Epiphyllum .. doz. blooms	0 0	0 0	Tropeolum .. 12 bunches	2 0	3 6
Eucharis .. per dozen	4 0	8 0	Tuberoses .. 12 blooms	3 0	0 0
Gardenias .. 12 blooms	6 0	18 0	Tulips .. .. .	dozen blooms	0 9
Hellebore .. doz. blooms	0 0	0 0	Violets .. .. .	12 bunches	1 0
Hyacinths, Roman, 12 sprays	1 0	1 6	" Czar, Fr., .. bunch	1 6	2 0
Lapageria, white, 12 blooms	0 0	0 0	" Parme, French, per		
Lapageria, red .. 12 blooms	1 0	2 0	hunch .. .. .	4 0	6 0



#### PERMANENT PASTURE.

DURING the present month much grass seed is sown either for layers or permanent pasture, and attention may therefore well be called to the consideration of ends and aims in this work. Consider the end, always consider the end, say we, and weigh well every detail of work and probable results before coming to a decision about it, but when this is done bring all possible energy and skill to bear upon the work, and be satisfied with nothing less than the best way. There is by far too much inferior work in agriculture, and this is owing to various causes; insufficient capital, ignorance, prejudice, and thoughtlessness are other causes.

Let us see now what can be said for and against permanent pasture regarded from a general point of view. It may be laid down at the outset that an average crop of two tons of hay per acre may always be had upon really good permanent pasture. Last year we had almost double that quantity from some of our best pastures; nor was this simply owing to a favourable season, but rather from steady persistence in the use of the manures we have so often enumerated in articles on this subject. The lowest price now for



good meadow hay in the rick is £4 per ton; cut, tied in trusses, and delivered to the consumer it readily commands another £1, but at the lower rate we have £8 per acre for hay alone, with an aftermath available for grazing by cattle for three months after haying, or for sheep onwards till the following February or March. At the present low value of land £3 per acre will pay rent, tithes, taxes, as well as for manures and labour, and if so, can we say that profitable farming is impossible?

How to obtain such pasture is, we fear, beyond the knowledge of the ordinary farmer, simply because he has never set himself seriously to become master of a branch of farming, which high prices for corn enabled him to ignore. At a market town in the eastern counties a so-called lecture on permanent pasture was given recently, which really resolved itself into an enumeration and description of the most suitable sorts of forage plants for the purpose. In the subsequent discussion of the subject the questions and remarks of the farmers made, it was quite evident they were incompetent to undertake such work. Ten shillings and 20s. an acre were sums mentioned as a sufficient outlay for laying down land to permanent pasture, and outspoken preference was given to a growth of natural (indigenous) Grasses. Such observations are an undoubted outcome of ignorance, and, we fear, we must add some prejudice. Evidence of this might be enumerated from many sources, one remarkable example must suffice. A correspondent of the *Agricultural Gazette* recently gave utterance to his views by the following remarkable statement:—"I must have a word about seeding of land down to grass. Our prodigality knowing ones will have it that the laying of land down to grass needs a costly process of cleaning and seeding with cracked-up seeds. I have examined a lot of land that has been seeded down thus costly, but in no one instance do I find their grand costly seeds to stand. They die out, and the natural Grasses come in. My own 100 acres of clay land that run down takes the shine out of the costly practice of seeding down, for it is now overrun with natural Clover and other fine Grasses. I did not have any of their pickpocket stuff, but I dress my land frequently with corn-made manure. That is the way to fetch the land about." This proof of the pudding so positively set forth, probably led to its publication. No doubt the term "run down" is singularly appropriate, but can farmers afford to let land for which they pay rent run down? Can they afford to adopt such haphazard practice as to trust to a chance growth of natural Grasses? The writer of the statement is a Bucks farmer, and if he were to go into the adjoining county of Bedfordshire he would see plenty of land so neglected, which is now clothed with a natural growth of couch Grass.

That much young permanent pasture is ruined through mismanagement is true enough we grant, but it is obvious that no just condemnation can be passed upon the work for such a reason. Repeatedly have we reminded our readers of the high importance of careful management of young seeds for the first two or three years, and no statement of cultural details is either complete or safe without such caution. Let us once more notice the indispensable points of the work. We require soil clean, fertile, and with deep fine tilth; pure seed of the best sorts of Grass and Clover at the rate of about 40 lbs. an acre. If sown now without a corn crop, the first growth will be ready for the lambs at weaning time, so that they only without the ewes may be folded upon the seeds. The folds are made small enough to ensure a sufficiently close consumption of the whole of the growth in twenty-four hours, a new fold being made every morning. Nourishing dry trough food is given in the folds, and thus all risk of any of the young growth running to seed is avoided, clean work is made of it, and a store of fertility is left behind which ensures a second growth of even greater vigour. The lambs are again folded upon it in a precisely similar manner in due course, but they are withdrawn altogether early in autumn. In the second year come folds for the entire breed-

ing flock, ewes and lambs going from the Rye Grass on to the seeds soon enough to avoid risk of seeding, and the process is repeated twice or thrice till autumn, but the pasture is again held in reserve through the second winter, to be used either for hay or grazing in the third year. All this involves some extra labour, but it is labour well bestowed, a means to an end which results fully justify. How far it may answer the general purpose to adopt it we hope to consider in another issue.

#### WORK ON THE HOME FARM.

Quick germination and so free a growth has following the sowing of spring come that most of the fields are already green with it, and the hoeing of winter corn is in full swing. Never did we have a more favourable season for sowing artificial manure upon winter corn, for frequent showers dissolved and washed it into the soil, so by that we may reasonably hope to see good effects from it early this year. We are trying our best to get more out of the land by putting more into it. We hear much talk about an average Wheat crop of four quarters an acre, but knowing as we do that all good land will yield nearly double that quantity under good cultivation, we cannot rest satisfied without doing all we can to obtain such desirable results. Perseverance in this must eventually be crowned with success; but we dare not hope for such a crop of corn this season, our farms are too large and too poor for it. We have the expensive and arduous task of restoring fertility to farms thrown upon the landlords' hands by tenants who having "farmed the land out," resigned their holdings upon the plea of failure through hard times. We may mention for the guidance of other agents in a similar position that upon appeal against income-tax upon such farms, we have obtained full remission under both schedules A and B upon proving no profits, fair attempts to let the farms, and that they were thrown upon the landlords' hands by tenants. In the preparation of our statements we are painfully impressed with the sad fact of the difference in value of all farm stock in a single year, even horses being no exception. They have fallen off so much in value that our rather large stock of home-bred colts are valuable for replacing old horses rather than for sale. We must of course continue breeding horses, but it will be only from aged mares.

We regret seeing sheep folded upon Rye before it is ready this year; scarcity of food is the cause; but Rye only 3 or 4 inches in height cannot keep the flock going long. We are fortunate in having a large park for the home flock, and the grass grows so fast now that we shall be able to give the Rye another fortnight before beginning folding upon it. Folding upon Turnip land is finished, and the land is ploughed and sown with spring Tares. Winter Tares are unusually backward, and we shall be fortunate indeed if they are ready for the sheep after the Rye Grass is done. We shall have to send the flock to an off-farm for this, and a clamp of Mangolds is being held in reserve there to be eaten on the Rye Grass. We regret to see so many farms with few, some with no sheep, at the present time. No doubt many a flock was sold for what it would bring last autumn, but we must deplore such rash measures, which practically mean living upon capital.

#### OUR LETTER BOX.

Small Handbooks for Farmers (*H. B.*).—Possibly "The Principles of Agriculture," by V. C. Buckmaster and J. J. Willis, published by Simpkin, Marshall & Co. at 1s. 6d., will suit you. More complete information will be found in the Handbook of the Farm Series, published by Bradbury, Agnew and Co. at 2s. 6d. each. Six of the series have been published. Probably the following four will suffice for your requirements: "The Equipment of the Farm," "The Crops of the Farm," "The Live Stock of the Farm," and "The Dairy of the Farm." They are written by well-known authorities on the respective subjects.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain
1886. March.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday .....	4	29.936	47.5	45.9	S.W.	44.5	52.9	41.7	67.6	36.2	—	
Monday .....	5	29.936	47.8	45.4	S.W.	44.6	53.2	43.1	69.4	37.6	0.010	
Tuesday .....	6	29.686	50.2	45.8	W.	45.2	56.3	46.8	104.2	42.3	—	
Wednesday ..	7	30.006	44.6	41.4	W.	44.9	50.9	35.4	69.7	30.2	0.301	
Thursday ....	8	29.250	49.8	46.7	S.W.	45.5	55.5	48.0	98.6	42.6	0.132	
Friday .....	9	29.527	42.0	39.2	S.W.	44.3	49.2	37.4	92.4	33.3	0.044	
Saturday ....	10	29.586	45.7	41.6	S.	43.2	47.0	33.7	81.9	27.4	0.115	
		29.704	46.8	43.7		44.6	53.0	40.2	87.7	35.7	0.602	

#### REMARKS.

4th.—Overcast, except a short time in morning; fresh breeze.  
5th.—Fair morning; sunshine about noon.  
6th.—Fine pleasant day; clear night; windy.  
7th.—Fine till 11 A.M., then dull and showery; wet afternoon and night, with gale.  
8th.—Fine early; heavy rain between 9 and 10 A.M., and between 4 and 6 P.M.; clear night.  
9th.—A mild day, bright sun, heavy soft hail showers from 10.40 A.M. till after noon.  
10th.—Bright early, dull and showery after.  
The third of a series of weeks getting gradually cooler, this one being of nearly the average temperature. Slight frost on two nights, and the ground white over with soft hail on the 9th.—G. J. SIMONS.





## COMING EVENTS

23	TH	
23	F	GOOD FRIDAY.
24	S	
25	SUN	EASTER SUNDAY
26	M	BANK HOLIDAY.
27	TU	[Promenade Show. Royal Horticultural Society—Fruit and Floral Committees at 11 A.M.]
28	W	

### THE PRIMULA CONFERENCE.

**E**XHIBITIONS of the stereotyped character have become so numerous in recent years that they are somewhat monotonous to exhibitors, the public, and all who are in any way connected with them. Specimen plants which were seen at one or two shows in a season are now found at a score, and beautiful though they be, they lose much of their interest after a few inspections. Something of novelty in exhibiting was required to awaken the public attention, and this the Council of the Royal Horticultural Society found in the conferences or congresses they initiated a few years since, and which have proved so successful. From an educational point of view these are far superior to ordinary exhibitions, and they constitute displays of scientific and practical value. Large collections of a particular kind of plant, fruit, or vegetable are obtained, representing a great number of varieties grown under different conditions and in widely separated districts, affording an admirable means of comparison and correcting nomenclature. The experiment has been tried with Apples, Pears, Daffodils, and Orchids in previous years, the present season being reserved for the Primulas, which thus constitutes the fifth of the series, and must be chronicled as an equal success.

The selection of the Primulas for a special gathering of this kind is easily justifiable; they are favourites with all for their unassuming beauty, and the family yields so many useful garden plants that it ranks high in horticultural importance. For example, *Cyclamen persicum* and *Primula sinensis* alone are grown in enormous numbers, and some market growers raise the former by tens of thousands to supply the widespread demand for such useful decorative plants. Amongst hardy plants the elegant American Cowslips (the *Dodecatheons*), the *Lysimachias*, including that cottage favourite "The Creeping Jenny," the brightly coloured Pimpernels and graceful Soldanellas, are examples of the Primrose family, but it is in the typical genus itself—the *Primula*, that we obtain the greatest number of forms and the greatest variety of colours. In the species delicate shades of yellow predominate, with purple, crimson, and rose tints, though in some that have been long under cultivation, and of which many varieties have been raised, combinations of all these and other hues are abundant. This is particularly the case with the *Auricula*, which for over 200 years has been carefully tended by innumerable admirers, who have multiplied its variations until it has been rendered one of the most changeable of cultivated plants. It seems that when once the stability of a plant's habit is thoroughly disturbed by hybridising this mutability becomes a character, and the variations can be increased at pleasure. In the Alpine *Auricula* this is well seen, for many have now discontinued naming the varieties, as from seed of a good strain numberless forms can be raised, a large proportion of which would at one time have been considered worthy of separate titles. The more highly bred, edged, or show

*Auriculas*, when judiciously crossed, produce similar results, but the proportion of sterling novelties is much smaller, and such experienced *Auricula* growers as the Rev. F. D. Horner and Mr. J. Douglas have had to discard many varieties before securing those which have been found worthy of special certificate honours at the hands of judges.

It is unnecessary for us to trace the progress of the *Auricula* to its present high standard and diversity, for Mr. Shirley Hibberd and the Rev. F. D. Horner give, in another part of this issue, the results of their researches and experience, and to these we refer all who are interested in the matter. There is, however, another portion of the subject that deserves a few remarks—namely, the *Primulas* which have come into general cultivation in addition to *P. Auricula*. A close companion to the *Auricula*, in the estimation of florists, is the *Polyanthus*, which may be botanically regarded as a near relative of our common Cowslip, *P. veris*. Varieties of this, with red and brown gold-edged blooms, have long been favourites, and as hardy garden plants the *Polyanthuses*, Alpine *Auriculas*, and the *Primroses* (descendants of *P. vulgaris*), take the lead in the genus. Amongst indoor *Primulas* that have attracted notice in recent years *P. cortusoides* and its varieties, with the stately *P. japonica*, are scarcely less popular than *P. sinensis*, though the still more recent *P. obconica* is likely to have a large share of public favour when its merits are more generally known. To the many lovely Himalayan and other exotic *Primulas* we need not refer, as in the articles which have appeared in our pages during the past six months the best have been fully described, together with the special treatment the plants require.

The combination of the National *Auricula* Society's Show with the *Primulas* afforded an extensive and varied display, the chief features of which are described in another column, two of the papers prepared for the Conference on Wednesday being also given. Owing, however, to the great pressure upon our space this week those by Mr. J. G. Baker and Dr. M. T. Masters are reluctantly held over to another issue. Mr. Baker's paper is entitled, "A Synopsis of the European Species of *Primula* with their Distribution," and he enumerates twenty species arranged in four groups—*Primulastra*, *Aleuritia*, *Auriculastra*, and *Arthritica*, which are distinguished by characters derived from the manner the leaves are folded, whether mealy or not, and some peculiarities of the calyx. Brief descriptions of the species are also given with their authorities. Dr. Masters' contribution is, "On the Root-structure and Mode of Growth of *Primulaceæ* in Relation to Cultivation."

There was a good attendance at the Conference, which was opened in the Crush Room at the Royal Albert Hall at noon on Wednesday by J. T. D. Llewelyn, Esq., and as proofs of the papers had been distributed, it was decided to take them as read, except Mr. Horner's contribution, which in his absence was read by a friend. This saved considerable time, as after a few introductory remarks by the Chairman they were enabled to proceed with the business of the meeting. Mr. Shirley Hibberd gave a brief but entertaining summary of his paper on the origin of the *Auricula*, which was followed by an exceedingly interesting discussion on the matter, several important facts being elicited. Mr. J. G. Baker spoke at some length in defence of the views he had adopted, that *P. Auricula* and the hybrid *P. pubescens* were the progenitors of the garden *Auriculas*, also giving references to plates earlier than those quoted by Mr. Hibberd, and especially noting the figures and descriptions by Clusius to prove that the principal European *Primulas* were defined, and that many variations of the *Auricula* type were cultivated before the close of the sixteenth century. Professor Foster and several others also took part in the discussion, but it was ultimately resolved that a suggestion by Mr. R. I. Lynch should be adopted—namely, to endeavour to obtain seed from the typical *P. Auricula*, to raise seedlings, and thus test its capacity for variation. Sir Joseph Hooker remarked that



he had listened to the discussion with much pleasure, and expressed high approval of the Conferences on special subjects, which afforded the botanists and horticulturists admirable opportunities of assisting each other. Dr. M. T. Masters and Mr. J. G. Baker each gave an outline of their respective papers, and after some further discussion the meeting was concluded with hearty votes of thanks to the Chairman and all who had contributed to the interest of the occasion.

## ORIGIN AND HISTORY OF THE FLORISTS' AURICULA.

By SHIRLEY HINNERD. Prepared for the Primula Conference, April 21st, 1886.

In treating the origin and history of the florists' Auricula, in the interest of the Primula Congress, it is a matter of plain propriety to remark that I discoursed on the same subject in this place on the 25th of April, 1882, and the text of my thesis was published in the horticultural papers. With the present important task before me, I have again reviewed the history of the flower that takes highest floral rank amongst the Primulas, and shall endeavour to submit to your consideration matters that are possibly of importance, and that, I hope, will at least prove interesting. It will be convenient to dispose of established truths in the first instance, in order to obtain a proper basis for speculations on things unknown. The origin of the Auricula we will, for the present, assume to be unknown, but we have at command much of a trustworthy character in relation to its history during the past 300 years, and it will be a safe, even if a dull procedure, to rummage the books and set forth a few of the more promising facts and figures before tackling the portentous question of the origin of the flower.

### EARLY HISTORY.

A direct hint as to what to avoid as well as what to attempt may be derived from the reference to the Auricula in Beckmann's "History of Inventions." He quotes from Weismantel's "Das Blumisten" to the effect that Ovid, Pliny, and Columella knew the flower. Well, those writers were also acquainted with Garlic, Barley, and Figs; but we pay no attention to them until they offer some special information illustrative of the arts, customs, or necessities of the times in which they lived. It is somewhat to the purpose, perhaps, that Pluche, in "Spectacle de la Nature" (ii. 49), states that the Auricula was carried from Switzerland to Brussels by Walloon merchants. The second volume of this work was published in 1733, and it gives no clue to the date of the carrying. But the statement is of importance in connection with the general belief that the Auricula was cultivated in the Netherlands long before it was introduced into this country; and that the garden varieties of the flower were introduced by refugees from the low countries about the year 1570. We find mention of the flower in the works of Fuchs, Matthiola, Clusius, Turner, and Dodoens. But the sixteenth century botanists were but little better informed on the subject than the writers of the later Roman period; and it would be waste of time to attempt to formulate their scraps of information. Matthiola figures the true Auricula admirably at page 706 of "De Plantis Epitome" (1586). In the superb edition of Dodoens, printed at Antwerp by Plantin, it is very badly figured at page 148. By both it is described as *Auricula ursi*, and by this name of Bear's Ears it was generally known amongst the sixteenth-century botanists and gardeners.

In the year 1570 many artisans, driven from the Netherlands, settled in this country, and they brought their favourite flowers with them, including the best of their Auriculas. We begin business at the old shop, for Gerard, who published his "Herbal" in 1597, described and figured half a dozen varieties. On page 640 the contrast between the yellow and the purple Bear's Ears, although shown in drawings that are truly execrable, is full of instruction in respect of the question before us. The other figures are of little consequence, but the two that lead the way speak emphatically of the distinction between the true Auricula and the flower known to us as the Alpine Auricula. In plain truth they were as distinct then as they are now, and John Gerard's bad drawings hit the truth admirably. It is important also to note the remark of Johnson, in his edition of Gerard, published 1633, to the effect that there are divers varieties, differing in the leaves, which are green or hoary, and in the flowers, which are, white, yellow, red, and purple; the gardens of Mr. Tradescant and Mr. Tuggie being well furnished with such.

These things prepare us for what the immortal John Parkinson has to say. In his "Theater of Plants" (1640) he copies the bad figure from the Antwerp Dodoens, and describes twenty-six kinds of Auriculas. It is of the highest interest to note that amongst them occur a "stript purple," which he describes as singularly changeable; also a parti-coloured red and white "heard of but not seen." The Collic, that he describes as "somewhat sad but very lively," and the "Purplish Blew," appear both to have been of the class known to us as selfs, while "Heavens Blew," "Paler Blew," and "Bright Crimson," were of the class now known as Alpines. Of yellows he says there were many, but so mixed "I cannot expresse them." This is just what might be expected, and it may be fair to add that, as a matter of course, they were the least valued, because not far enough removed from the wild flower of the mountains, for the opinion appears to have prevailed that there was only one kind of wild Auricula.

In the "Paradisus" there are twenty varieties described, a few of which are admirably figured. Of these nine had green leaves without meal, and the remainder were more or less mealy. The flowers are presented as varying in colour, and some have a centre of the kind we call "paste," while others are without it. The colours are just such as we find in border Auriculas of the present day, comprising shades of red, purple, violet, marone, yellow, and white. We are certainly in the midst of Auriculas, not only of the mountain, but also of the garden. It appears that we have in the "Paradisus"—inexhaustible treasure as it is—the fountain of diversity as revealed to the penetrating eye of "Thine in what he may," the author of what he himself in his dedication designates "this speaking Garden."

This paper should be something like a catalogue of evidences, and I invite your attention to the description of "the great straw-coloured Beares eare," at page 238 of the book last mentioned. "This hath almost as mealy leaves as the last, but nothing so large; the flowers are of a faire

strawe colour, with a white circle at the bottom of them." These three last (that is the great yellow, greater yellow, and great straw) "haue no shew or shadow of any other colour in any part of the edge, as some others that follow haue."

The "blush Beares eare," the "Haire-coloured Beares eare," and the "yellow variable Beares eare," are described as edged flowers. For example, the "Blush" has a ground colour of a dark or dunne-yellow, shadowed over a little with a shew of light purple, which, therefore, we call a blush colour, the edges of the flower being tipped with a little deeper shew of that purple colour, the bottom of the flower abiding wholly yellow, without any circle, and is of very great beauty." The Hair-coloured is of a brownish yellow, edged with a show or shadow of a light purple colour. The Yellow variable is of a fair yellow, "dasht about the edges onely with purple, being more yellow in the bottome of the flower than in any other part." I seem to hear our friends the florists say that these were flowers with shaded edges, of which we have many at the present day. Yes, the history of the flower is before us, and the "Paradisus" appears to provide us with the very first record of that kind of edging. Parkinson reserved a *bonne bouche* for a wind-up of his feast of Auriculas. It is the "Variable green Beares eare." This hath green leaves snipt about the edges; the flowers are yellowish green, having purple edges; these have no circles at all in them. This variable green with a purple edge might, for present purposes, be assigned the position of a pole star in the floral firmament; at all events, I, for one, feel attracted to it, and expect it to afford assistance in tracing out the order of the stars in the two constellations of Ursa major and Ursa minor that "in earth's firmament do shine;" for these stars seem to be now coming home to us.

### THE EDGED AURICULA.

There is no special interest for the present occasion in the progress of the Auricula in what appears to have been its early conditions as regards range of colour and variation of leafage. It is only when it assumes what, for convenience sake, may be termed its exhibition character, that it becomes more than ordinarily attractive, not only for the delight of the eye, but as a subject for scientific study. Let us then consider the position of the edged flowers in the history. The one presented us by Parkinson is very different to the florists' Auricula of the present day; but it is probably a true Auricula, for the leaves "do turne and fold themselves a little backwards," the flowers are less expanded than some others, but alas! they have no circles in them, and the variety is not figured. This, we will say, is the most remarkable of all cultivated flowers, a small wonder, but a true one; a great achievement of art or a most extravagant freak of Nature. When did the first properly edged flowers appear? That question is now forced upon us, and is full of significance, even if judged by this first record of a green flower with a purple edge. A very trifling change would give us a purple flower with a green edge, and changes of that kind are common enough.

Strange to say, edged flowers were not received with open arms by the faculty. They had to win their way slowly to the favour of the florists, and on the principle that the world knows not its greatest men, the gardening world in general was for a long time ignorant of this unique production; this most precious of all the jewels in the diadem of Queen Flora. The proof of this will furnish matter for a paragraph.

In Miller's Dictionary, first published 1781, the edged flowers obtained no recognition, but Miller provided a good code of judging Auriculas, minus, of course, certain points that are of peculiar importance now. The fact proves that the flower had acquired extensive popularity, and inspired some kind of corporation that for present purposes may be designated the Auricula Fancy. Even in 1676, fifty years after Parkinson had so nearly witnessed the making of the florists' Auricula, John Rea, in his "Florilege," described striped flowers, and advised the selection of flowers "with white eyes that will not wash."

The subject obtains scientific treatment in Hill's "British Herbal," 1756, and the author, John Hill, M.D., boldly declares that many of the so-called species of authors "are no other than varieties of this plant rising from culture." At page 98 he speaks of the yellow Auricula as standing alone, and apart from those that produce red and purple flowers. Of these last he says there are three species not directly related to the yellow Auricula, and these he describes as narrow-leaved, round-leaved, and long-leaved. To one of the descriptions he adds the remark that "there is no judging by what one sees in gardens, where the accidents occasioning varieties are endless; but in those collected wild there is no error."

In Hill's "Eden," by the same John Hill, published 1757, Auriculas are fairly treated of, but edged flowers are not mentioned. Hanbury's "Body of Gardening," 1770, gives a hint in the way of our search in speaking of variegated Auriculas. It is a question of some importance whether the variegated flower of Hanbury was the striped flower of Parkinson, or a modification of that edged flower that had been noted as a curiosity 150 years before. There is clear evidence in the "Florist" of 1849 that in the year 1732 the edged flowers were not generally recognised; but in a code of rules for judging Auriculas, "flakes" and "stripes" are mentioned as important adornments of the flowers that were in favour in 1732. Mr. Slater, in his "Amateur Florists' Guide," gives a list of proper edged flowers that were in cultivation in 1776, and in my paper, read here in 1882, I assumed—I still think properly—that some of these were in existence in 1750, or earlier. The varieties known as Potts's Eclipse, Rule Arbitrator, and Hortaine were in cultivation in 1757. About 1785 the edged varieties were plentiful, and amongst them were Grime's Privateer, Popplewell's Conqueror, Gorton's Champion, and Wrigley's Northern Hero, which are still in cultivation, not as archaeological curiosities, but because they are good and have retained their initial vigour as cultivated plants for upwards of 100 years.

In fixing a date for the earliest record of an undoubted edged flower, I am indebted for valuable aid to my friend Mr. Harrison Weir, who, in a communication to the *Gardeners' Chronicle* of May 6th, 1882, refers to Sir Thomas Moore's "Flower Garden Displayed," published 1734. In this work many Auriculas are described, some of them introduced from Holland, and others raised in this country. It is important to note that the Dutch and the English varieties appear to differ as Alpines and true Auriculas, both classes finding favour here, but the English raisers having an especial affection for Auriculas proper, as apart from the Alpine section. Now, it is of the highest importance to observe that amongst many flowers of a class known as "Painted Ladies," because delicately improved, as ladies of that



day were, with a dusting of white powder, several are described as striped and one as distinctly edged. The edged flower is called Honour and Glory; it is said to have "a good white eye, and the flower striped with a dark reddish purple on a white ground, so as to leave the edge of the flower white." I repeat that this contribution to the history is important, because it not only places before us an undoubted edged flower, but it shows that the difference between stripes and edges was recognised. More than this, it shows that striped flowers were much valued, for one called the Royal Widow was sold for ten guineas, but the value of the edged flower is not suggested. It would be delightful could we find in the winning stands of the present season an example of the edged flower of 1731, which was very different to Parkinson's green with purple edge. As we cannot find the flower, we will look for Honour and Glory of a larger kind. Perhaps in the soundness of our work, and the sweetness of our tempers, and the earnestness of our hopes, we may be promoting a higher and wider appreciation of the Auricula, in which case honour and glory are secured, and we may safely proceed in the good old way, according to the sacred precept, "Whatsoever thy hand findeth to do, do it with all thy might."

#### ORIGIN OF THE AURICULA.

Let us now ask the question, Whence came the florists' Auricula? Charles Darwin, in "Forms of Flowers," page 43, derives it from *Primula pubescens*, which is represented as a hybrid between *P. Auricula* and *P. hirsuta*. Herbert, in "Horticultural Transactions," vol. iv., page 19, considers *P. Auricula*, *P. helvetica*, *P. nivalis*, and *P. viscosa* to have been concerned in the parentage. Indeed, Mr. Herbert considered he had raised a powdered Auricula from *P. nivalis*, which may be regarded as a white-flowered variety of *villosa* of Jacquin. As he gives no description, it is impossible to say whether his plant would pass for an Auricula if brought up for judgment here to-day; but he was not the kind of man to make any glaring mistake, and his plant must have differed from *nivalis* to entitle it to such special mention. Mr. Herbert, at the same reference, suggested that *P. Auricula*, *P. helvetica*, *P. nivalis*, and *P. viscosa* are but varieties of one and the same species. To the list may be added *hirsuta*, *pubescens*, *minima*, and *nivea*, for in truth we are now trading in names, and we shall have to be careful that we do not mistake shadows for substances. In his "Die Geschichte der Aurikel," Professor Kerner avows his belief that *Primula Auricula* is not subject to variations, and that it probably did not keep a place in gardens for any length of time beyond the middle of the seventeenth century. But then he obtains for the making of the garden flower the blood of *P. Auricula* and *P. hirsuta*, which he regards as the parents of *P. pubescens*; and from this last, a reputed hybrid, he derives both the edged and the Alpine varieties. This proposal will not be accepted by many of the raisers of seedlings, whose experiences have rendered them familiar with the peculiarities of both classes. It affords but poor promise of an explanation of the yellow colour and the farinose decoration of the Show flowers, nor does it satisfactorily explain the shaded margin and the persistently naked leaf of the Alpine section. As regards the yellow of the Show flower, it does not appear in its true proportions to the casual eye; but if you will carefully wash away the paste you will find that it is laid upon a yellow ground. It seems to be the function of paste to play a game of deception. Kerner's views have been partially approved by Mr. J. G. Baker, of Kew; but he appears to lean to *Primula Balbisi* as a prominent progenitor, and he associates the edged flowers and the Alpines as at least not specifically distinct. The Rev. F. D. Horner, who combines experience as a raiser with knowledge of species and a fine faculty of observation, reckons *Primula farinosa*, *P. scotica*, *P. marginata*, *P. intermedia*, and *P. viscosa* as concerned in the parentage; and probably he would separate the edged flowers from the Alpines as of different origin.

Finally, I propose to you that we may with advantage regard the edged or Show Auricula and the Alpine Auricula as, for present purposes, specifically distinct. The general agreement of the Alpines is with *P. commutata* and *P. pedemontana*, the last-named being emphatically reflected in it. On the other hand, *P. ciliata* of Moretti may be associated with *P. Auricula* as concerned in the formation of the florists' flower.

But, after all, this is like arguing in a circle. The two that I have selected as begetters of each group are specifically one or two at the discretion of the botanists, as they may take broad or narrow views. We are in the same plight as regards the *Primulas* as we were in regard to the *Daffodils* before the Congress operated, when, as you will remember, a great reduction of the species was carried into effect. I will venture now to say that the employment of names in the expression of our ideas as to the origin of the Auricula must be subject to the possible reduction of names by the Revising Committee. I can find a dozen or more so-called species that are possible parents of the Auricula, but as I question their specific independence I do not feel that making a catalogue is, in this case, the solution of a problem in biology. As for *Palinuri*, I cut short the connection by dismissing it as a possible progenitor of Auriculas.

#### CHARACTER OF THE AURICULA.

Let us now make a brief study of an Auricula with reference to the facts that are before us. In certain characters it is constant. The leaves are stout in texture, often leathery, sometimes slightly cartilaginous. The flowers are always in a many-flowered visible umbel, never, like those of the *Primrose*, appearing singly from a concealed umbel. The floral bracts are short, never, like those of *P. calycina*, longer than the flower stalks. The corolla is distinctly contracted below into a tube and expanded above into a salver; it is never contracted into a cup or goblet, as in *P. sikkimensis*. The dusting with protective meal is not a distinguishing feature; but its abundant appearance as a decorative character of the exhibition flower is strikingly characteristic, and though it may be said that by long-continued crossing and selecting its appearance there may be regarded as the work of the artist called Man, yet his work is limited, not only by the capabilities but by the disposition of Nature. The powder belongs to the face of the flower, although its quantity and arrangement may be an exaggeration of Nature's intentions. The show of yellow in the colouring of the flower is a constant character. This is a colour wanting in many of the supposed parents. It should be borne in mind that the flowers of highest quality represent long-continued and severe selection; and therefore in an exhibition, or even in the general

stock of the cultivator, we do not see the entire character and possibilities of the flower. The seed-bed offers the raiser many that he will simply destroy, because of their nonconformity to rules, and amongst the condemned will be many of the so-called fancy flowers, that have no body colour, and approximate to the species. It should be remembered, too, that all the edged flowers have green edges; for although classed as green, grey, and white, it is only the relative density of the meal that makes the difference. It has been holdly declared that this green colour is a monstrosity indicative of a return of the flower to the status of a leaf, but we will defer the serious consideration of that proposal until we see the flower take the form of the leaf in addition to a touch of colour, which, from the florists' point of view, is one of its distinguishing beauties. It would be more reasonable, perhaps, to regard the green colour as a remainder of the original colour of the flower, for, according to the doctrine that has found general acceptance, the flower should be first green and then yellow, with the potentiality of changing to red and ultimately to blue.

Considering Professor Kerner's proposal in connection with these facts, it may not be irreverent to say that it leads us nowhere. We are to derive two groups of plants that differ by larger degrees than many that are recognised as distinct species, from a parent plant that is a reputed hybrid, and that possesses only a few of the characters required. We are assured that the purple and marone colours that are so prominent in the edged Auriculas cannot be derived from a species known as affording only shades of yellow. Those who make the declaration evidently forget the wide range of colouring of the common *Primrose*, wherein we have almost every colour except true blue. Linnaeus grouped *Primroses*, *Oxlips*, and *Polyanthuses* as forms of one species; and that view, though for long repudiated, is now generally accepted, and the point is especially insisted on by Bentham in his "Handbook of the British Flora." Between yellow and blue there may be somewhat of a gulf fixed, especially in the variations of a species; but from yellow to shades of red and purple is a transition far from uncommon. We have examples not only in the *Primrose*, but also in the *Chrysanthemum*, *Hyacinth*, *Tulip*, *Pansy*, *Carnation*, *Hollyhock*, and *Antirrhinum*. If you wander about in search of a source of the red and purple tones in Show Auriculas, you will never find means to account for the brilliant violet blue body colour of the variety known as Colonel Champneys, while others may be found that are apparently equally far removed from the possibilities of the botanical colourist. The truth appears to be that the colours we cannot by direct descent account for are in reality self-evolved, and belong to the category of changes that accompany and follow cultivation. In other words, these colours, with other characters that might, with equal reason, perplex us, are, in a certain sense, laid on by the hand of the cultivator. It is the fear of the botanist, who cannot recognise any merit in his brother the florist, that prompts him to find in this or that flower that the hand of man has left untouched, the sources of properties that the florist has developed by long-continued cultivation in view of an ideal model, towards the realisation of which he is ever striving, but never attaining, though happy in the endeavour, and justly though quietly proud of what so far has been actually accomplished. To obtain the two great classes of Auriculas from *Primula pubescens* is a greater extravagance on the part of Professor Kerner than any florist has ventured on as yet; but the florists have discovered long since that seeds derived from show flowers do not produce Alpine varieties; and, on the other hand, it is all in vain to hope for edged varieties from the seeds of the Alpine section. The general acceptance by the botanists of the proposal of Professor Kerner shows how much they need in their researches the aid of men who have acquired experience in the raising of new varieties of garden flowers, and in the management of garden plants generally.

Parkinson, 250 years ago, had a green flower with a purple edge. That must have been in existence long anterior to the writing of the "Paradiseus." It is not extravagant to entertain the supposition that it had been in existence hundreds or thousands of years before. In the same collection were striped flowers, and these appear to have increased until in the early part of the eighteenth century they abounded. Then, again, we hear of an edged flower called Honour and Glory in the year 1732, when Sir Thomas Moore described it. Since then the edged flowers have increased in number, and now constitute a race that has all the useful characteristics of a species. The green has proceeded outwards to the margin and settled there; the stripes have moved in the same direction and formed a ring within the margin; and the farina has accumulated around the centre to form what is termed the paste; while a rich tone of yellow marks the centre, and gives accent to the green of the primal flower, the result being an arrangement of colours in four orderly masses, three of them in circles of definite geometrical proportions. The *Carnation* offers a nearly parallel example, for here we see the flakes of the flower moving outward to the edge to fashion the *Picotee*. It is like the action of centrifugal force, the colours appearing desirous of moving off into space. What is termed the thrum does not appear to demand special notice in connection with the origin of the flower, but I shall not seriously interrupt the study of the subject by remarking that Charles Darwin found the short-styled flowers the most productive of seed, and thus the taste of the florist in this respect is in strict accord with the frugal notions of Nature. The rich yellow of the thrum is another feature favourable to the flower, which is as hardy and vigorous as any of its kindred, although commonly represented by the traducers of the florists as a debilitated thing; that requires a man and a boy to hold it up.

The Auriculas naturally divide into two groups, the Alpines leaning to *Primula villosa*, the Auriculas to *Primula Auricula*. There does not appear to be any necessity for the admixture of *Primulas* that has been hypothesized for the formation of these flowers. The facts of history suggest that in all their more distinctive forms these two sections represent only two species, and that each in its essential characters is self-contained and self-containing. We have no proof at any time of distinct hybridity, but it must be acknowledged as a fact favouring the view of a considerable range of parentage that the allied species breed freely together. The *Primulas* that most often come into contact with man are, like him, of a sportive nature. The laced *Polyanthus* might perplex us with its golden edge, and there are many edged *Oxlips* in the present Exhibition, and some that display stripes and incipient edgings, and that are probably in a condition of change corresponding with the Auriculas of Gerard and Parkinson.



## IMPROVEMENT OF THE GENUS PRIMULA.

[A paper by the Rev. Francis D. Horner, Lowfields, Burton-in-Lonsdale, read at the Primula Conference, April 21st.]

I ONLY take up this question at the direct request of my brother florist, Mr. Samuel Barlow, of Stakehill. The subject could not have been in better hands than his, nor associated with a name more known and honoured among florists. There is, however, this one thing to temper my regret, that I must take his place, and to add value to my paper, that the question I am to introduce is a very old and interesting one between Mr. Barlow and myself. Through all the years of our intimate friendship have we stood together over the Auricula in bloom, and taken careful thought as to the yet richer development of this highly cultured flower, a favourite with us both from boyhood.

Mr. Shirley Hibberd in his introductory paper, historical and descriptive, will have given some definite idea of what the florist's Auricula is; so that I shall not here be using technical terms altogether strange to those not conversant with the properties of the flower, some of which had not been acquired in the dawn of its culture some 300 years ago, nor are even dimly visible in the simplicity of its supposed wild ancestry. If any of the points for improvement should seem minute—perhaps fanciful—I can only say that the highest qualities have, as a rule, been gained only by such gentle gradients and slight curves as these. It is often some delicate touch, small in itself, but great in its effect, that raises a flower at once above the inferior or commonplace. To the accustomed eye the Auricula has an intense individuality, and very slight variations of feature alter an expression and enhance or detract from a type of beauty.

In a breadth of its brilliant bloom there is the effect as of many eyes turned steadfastly upon their admirers; and there are faces in the flowery crowd on which one may read many expressions of a life and character super-floral. Like as in a bed of Pansies there are many comical casts of countenance, expressive of astonishment, anxious inquiry, perplexity, and brown study; so here, in an exhibition of the Auricula, as representative of its beauty as can possibly be made, the flowers look all gentleness, candour, honesty, simplicity, and refinement.

Glaring faults that impart a low and evil look are all absent here; and hence I am not able to submit to you how impudent and barefaced is the "pin-eyed" flower, wherein the stigma, protruding from the hollow throat, is like a tongue thrust out. Neither, how loose and vacant is the expression of the inordinately large tube; and how cunning and cold that of one too small. Nor how lack of breadth in the eye or "paste" of the flower is like that in other eyes which cannot look you in the face; and how narrow ground colours betoken indecision and want of thoroughness. "Edges" have their own expressions, too; something like meanness when too narrow, and akin to bounce in over-breadth; for excess of edge is often concurrent with excess of size, and coarseness, almost inseparable from immensity in the Auricula, is one of its gravest faults.

Had it been practicable, a representative collection of failures in desired qualities would have formed a very clear illustration of mistakes. Yet I would not say it would be convincing; for invariably the uninitiated friend who comes to tell you which of all you have he likes the best, settles his admiration upon something that has set at naught all proper principles, and he does violence to your feelings by approving of it. But the greatest ordeal of praise I ever had was the remark, transparently innocent, of an old country parishioner, "They almost come up to artificials, sir!"

The question in what direction efforts should be made for improving the florist's flowers of the genus *Primula* resolves itself, descriptively, into the statement of the shortcomings more or less prominent and obdurate; prospectively, into what the possibilities are of which hopeful shadows in faint shape are cast before; and practically, in what system of experiments we should seek to overcome the faults, and win into reality the promise of fresh beauties that a flower, inexhaustible in its powers of variation, naturally affords us.

As an experimentalist I will adhere to the practical: use bare description as little as I may, and bring young hopes downstairs from the nursery realms of imagination as considerably as I can.

## PROPERTIES.

**Form.**—The first property to be worked for in the Auricula is, I submit, the perfection of that form upon which the colour-attributes of the flower will be the most effectively displayed. Colour can always be worked up to, and the florist may tarry patiently for this until he has the form of grace whereon to call it into play. I always choose as the maternal parent of Auricula seed the best flowers I have in breadth, circularity, flatness, substance, and smoothness of petal; while for male parentage I do not depart further than must be from form. Petals cannot be too broad, so long as they will expand equally and kindly. If they do not meet through narrowness or roughness the beautiful design of the colour zones is interrupted by vacant spaces signifying nothing.

The edged classes and the selfs have each their own type of error in respect of form. In the "edges" it is generally a pointedness of petal; in the selfs a central notch or heart-shaped depression. In the edged flowers the fault has long been noticed and regretted, and has now been brilliantly overcome, especially from the appearing of Lancashire's Lancashire Hero in 1846 onwards; but among the selfs until recent times there was hardly an exception to the rule of notch. The indented petal of the self seemed silently allowed to pass as the typical petal of the class.

**Selfs.**—For improvement of the self Auricula, my experience convinces me that the best results are to be obtained through entirely self parentage. I would not say that a correct self flower has never come from edged parents, for Mr. Campbell believed that his brown self Pizarro, the best flower in the class at the time, was raised from a green-edged parent, and Mr. Simonite that a good blue self of his was obtained from a white-edged seedling.

Certainly, however, my own best selfs have sprung from purely self parents, and latterly from a self descent comparatively ancestral. Selfs have generally a shorter duration of bloom than the edged flowers, which possess greater stoutness of petal, and in which the green, whether pure or mealed, is a colour of greater and more leaf-like vitality.

It might be theoretical to suppose that if selfs were crossed with these a

greater substance of petal would be transmitted. In practice, however, it is found that all seed from purely edged parents produces a majority of self varieties, and vast numbers of these are notched, and frilled, and flimsy flowers. I have never had wilder flights of seedling selfs than from that grand grey-edge, George Lightbody. It would almost seem that an "edge" did not know what a good self ought to be.

I think that for selfs we should work patiently among themselves, advancing in substance as we certainly are by sure if slow degrees, and not weakening the newly acquired and most supreme point of the "rose-leaved" or perfectly rounded petal.

Another point to aim at in the development of the self is the addition of some that would be constitutionally later in blooming than most of those we have. Campbell's Duke of Argyll (rich crimson, but deeply notched) might transmit this habit, and be overruled in this fault.

The Auricula bloom in a collection loses much of its power and beauty when the quiet yet emphatic selfs are gone. It is like the beginning of the end, as when in the fading summer the swallows take their flight.

**Edged Flowers.**—With reference to improvement in form in the green, grey, and white edges, I would remark that in these, good form, beyond its intrinsic value, has an influence inductive of other good properties. Rounded petals are associated with roundness of the white-mealed circle termed the "paste," while with the pointed petal the paste is often, as by a kind of sympathy, drawn into corresponding irregularities; which only intensify the serious fault of an angular appearance.

For form's sake, naturally, such flowers as have the roundest, broadest petals will be selected; and such a variety as George Lightbody, among those well known and distributed at present, will serve as a type.

If good form in both parents should justify it, my conclusions are that edged flowers should be crossed with their class fellows; for one line of improvement in the Auricula certainly lies in doing all we can to intensify and magnify the class distinctions, gaining green edges as deeply green as possible, and white edges as densely mealed. The "undecided edge," too green for grey, and too grey for a pure green, is not desirable. Still the Auricula is so very sportive that some decisive edges will be obtained from parents dissimilar in class; and the experiment is justified, of course, if there be no alternative, and if some marked improvement in form may be hoped for from it.

**Petals.**—Connected with form, in addition to the roundness and level disposition of the petals, may be mentioned their number. This is variable, even in different flowers on the same plant. Five is probably the normal number, for beyond this the Auricula will take a playful liberty with the proprieties of its Linnean order, Pentandria, always producing just as many stamens as there may be petals; and if one be of inordinate breadth it is accounted as two, and decorated accordingly with two stamens. This may be a botanical misdemeanour, but is not an offence under florist bye-laws. The same is noticeable also in the florist Tulip, which is required to have petals neither less nor more than six, but is occasionally misformed with four or five, and seven or eight, when there is always one attendant anther for each. In the Auricula five or six petals are sufficient for a broad round flower, and more than eight begin to look narrow and laboured.

**Colour.**—When we turn from improvement in form to views of improvement in colours, both in richness and variety, a very wide field of development lies before the florist. Possibilities peep out but half concealed or only in the rough, revealing themselves in the rarer combinations of colours that a few seedlings crudely show; and these beckonings need but to be followed to obtain in time some new and beautiful combinations.

The Auricula is a most richly endowed flower, possessing already, singly or combined, all colours of the rainbow—violet, indigo, blue, green, yellow, orange, and red; and further still and rarer, that negation of all colours, black. In edges we do not look for a gift of other than the green, grey, and white, now so well known and fixed, while the colours of the paste and tube are constant and common to all. There remains but one more colour zone upon the flower, to give variety and play, and that is the ring or belt of velvety surface known as the "ground" or "body" colour.

Disposed between the green or powdered edge and the white mealed "paste," it is a solid band along its inner edge; while on the outer it flashes in lively pencillings, bold and blunt in some varieties, sharp and delicate in others, towards, but not dashing through to the petal edge. It is this lively characteristic of the body colour that entirely takes away any tameness or monotony, hardness or fixity that a series of strict concentric circles might be supposed to have. The body colour should most certainly have a good solid foundation before it begins to feather off, because a few slight pencillings only have a very feeble and scratchy effect, while a bold and rugged style of its outer edges is massive and handsome in the extreme. But by an expressionless ring of black, dreary as a black hatband round a white hat, I would not advocate taming the Auricula down to the miniature similitude of an archery target. Such a picture of utter and unbending primness (for which the botanical equivalent is not *Primula*), as a series of severe circles may indeed have been in old time perpetrated in hard diagram; but this was only as the bare skeleton which Nature in real life shall clothe with all fulness, softness, and grace and vivacity.

The body colour is the "iris" of the flower's eye, and black is at present the most settled colour. A good black is very safe and true, lasting well upon the flower, a most important point; and hence it has been a favourite colour, especially with florists in the north, and the more encouraged, pursued, and developed. Indeed other body colours were regarded with marked disfavour by old Lancashire florists, though if other colours had been worked up to the truth and steadfastness of the black, there is nothing but local fancy or prejudice to make them less valuable and less beautiful. Little encouraged in such variety, the Auricula has shown a capability, if only initial yet, of giving both blue and crimson as the ground colour in edged flowers. These will of course require cultivating up to intensity and steadiness, and I submit this as a very interesting new path of improvement.

One marked difficulty so far has been that of transmitting to any flower, whether self or edged, the all-important feature of a rich gold tube, if that flower has tints of violet or blue. Their tubes are pale or greenish-yellow, always a colour of low vitality and weak endurance. Some seedling blue selfs, however, by pollen from gold-tubed varieties, are better in this respect than the old blues.



Memories come back to me here of some old flowers that might have been helpful towards new combinations of colours that are faint and timid, and wavering yet.

Such were Moore's Violet a green-edged flower, with violet body colour, and a green edge of Traill's (Rev. George Jeans), in which the ground colour was of a lilac tint. In white edges were Aston's Bonny Lass, with beautiful violet, and Maria, richer in colour. These, however, and others of like colour, all were weakened by a pale and watery tube; and further, the ground colour was not of one uniform steadfast shade, which it decidedly ought to be in both edged and self Auriculas. Red or crimson as a ground colour of edged flowers has not yet been obtained of any intensity. Lightbody's Fairy Queen and Star of Bethlehem, and also Smith's Waterloo, were green edges, in which the body tints were a shade of red-plum, and a white edge of McDonald's was lighted up with a brighter red. Chocolate-brown is another possible change in ground colours worthy of being followed up. It occurred in Lightbody's white edge Countess of Dunmore, and in Smith's Ne Plus Ultra. These red and brown ground colours are happily not associated with the weak tube colours of the blues.

Mr. Simonite, in his Heather Bell and Aurora, has better blue-grounded white edges than the old ones, and the tubes, though not of a strong yellow, have more stability. An offer of a red-grounded green edge occurs in a rather erratic seedling of Mr. Rolt's. The edge is pure but insignificant, and the red ground colour brightens with age, but is too broad, and runs wildly out at the petal edges. Such a flower would be worth crossing with some green-edge seedling of fine form, in which existed the fault of a ground colour much too slight and narrow.

In new types of colour in self the last great acquisition came through Mr. Campbell's success in his efforts to produce a true crimson self. Some fifteen years ago he sent out, as the result of many years' work abounding in failures, two intensely crimson flowers—the one better than the other both in its colour and its rich gold tube, but both of them notched in petal. These flowers have transmitted their colour well to seedlings of better petal.

Within the last two or three years another new and very beautiful break in self colours has occurred among both Mr. Simonite's seedlings and my own, showing yet another direction in which we may seek to enrich and improve the Auricula. This new colour is a very lovely and decided pink. The flowers have happily been nearly always gold-tubed, and the petal is a fully rounded type. This young colour, however, is not easy as yet to obtain solid—i.e., unshaded and steadfast. Some have failed by growing slightly paler with age, or in losing with age the surface of the petal; so that what is velvet at first, is calico at last.

There is no doubt, however, that the true pink self is a coming flower, and I name it as one illustration more of the direction in which the Auricula may be improved.

I have spoken of the failures of this newly-won colour—the successes must speak for themselves when they can.

*Adolescence.*—There is something very curious in the blooming character of the first three years' life of an upgrown seedling which it is important to mark and allow for, because it certainly is connected with the practical part of our question.

It is not an invariable rule, but it is a frequent occurrence for a seedling that blooms with brilliant properties in its maiden year to flower the second year in much inferior if not loose character. This is oftener the case with the complex-edged flowers than with the simpler selfs. At the third year the flower may either return to its early promise, or go again astray. I do not know how to account for it, but it is a noticeable feature in a long experience.

It would seem as though the plant were affected by some unseen change or turning point in passing from its seedlinghood to becoming an established variety. Certainly some seedlings that show brilliant properties the first year never afterwards display them; and occasionally others, that one has gladly given away to friends with garden borders, have, like the "ugly duckling" of the story, developed into very swans of excellence.

I mention this, not only that joy over some sudden acquisition may be tempered with gravity, but also that doubt may be not unlighted with hope.

I do not cease to feel some anxiety for a brilliant seedling, and some hope over a rather disappointing one, till I have seen them at their third bloom. Some faults are decisive, such as the pine-eye, the pale tube, the angular paste, the notched or pointed petal. Of such there is no hope. But if properties of tube and paste and petal are fine, I do not discard the seedling because, at its maiden bloom, the proportions and other qualities of the ground-colour and edge may not be correct. There may be a good flower in disguise.

#### ALPINE AURICULAS.

I pass on now to a brief notice of that other division of the Auricula as a florist flower, which is technically known as the Alpine. These very beautiful flowers possess, as features of distinction from the edged classes and selfs, a perfectly unmealed centre or eye, and petals richly shaded from the deepest to the lightest tints of that one colour which the flower has adopted. That shading cannot be in tints too numerous or too softly blended.

The tube of the Alpine so closely follows in colour the centre of the flower that it should have an expression in form all the more marked, because there is the less power of contrast with the centre by colour. It is a great point of beauty in all Auriculas that the mouth of the tube should be well defined, and rise fully to the level of the flower's face, otherwise there is the appearance of a weak and sunken eye.

The Alpine Auricula is divided into two sections, distinguished by the golden, and the paler, almost primrose-coloured centre. The golden centre is the higher type. In the Alpine, as in the edged flowers, it is again the flowers possessing violet or bluish colours that exhibit the palest yellows in the tube and eye. Flowers would no doubt be very highly valued in this class of violet shades if they could be obtained with the rich golden eye of those with crimson.

#### THE POLYANTHUS.

I must not close this paper without including the florist Polyanthus, a lovely sister of the Auricula, and in sore need of reinforcement in sterling

varieties. Some of the very best Polyanthus, like Kingfisher in the red ground flowers, are lost to cultivation; and among black grounds of high merit, Lord Lincoln seems all but gone. Many gardens strains of Polyanthus are termed "gold laced," but they are a far remove from the florist flower with its cultured properties. The resemblance in most of them looks nearest when seen at the greatest distance. The decision, purity, and refinement of our Polyanthus are not in them.

Mr. Barlow's success in raising both black and red ground flowers of very high character, perhaps in red more especially, is a proof that though the flower may not be more ready than its radiant sister, the Auricula, to give the properties we would have, still it will repay all good care bestowed in judicious crossing.

I do not think that any foreign blood of strains outside the florist pale, however proudly spoken of, should be introduced under the plea of giving vigour, which the standard old sorts have, alas! too often lived to lack. From such extraneous source of robustness will come much unruliness. A more safe return to soundness of constitution will be naturally obtained through seedlings, because seedlings naturally possess it, and happily young blue blood is no exception to the rule.

For suggestions of improvement in the Polyanthus I can but briefly state the properties that require to be exemplified in as many living representations of their beauty as we can obtain. The two brilliant extremes of class colour will be a black ground, or a scarlet ground within the lacing of bright yellow. Whatever the body colour be, it must consist of one rich uniform shade; and the yellow, which is best when a clear lemon-gold, must be free at the eye or centre from any other shade of yellow. The gold of the lacing must exactly match that of the eye, and the lacing itself must be of exquisitely smooth edge and even width. It must both completely edge the petal and strike down through the centre of it to meet the golden eye. The central line of lacing is frequently broader down the middle of the petal than round the edge, but the nearer it is of the same width the better.

It is characteristic of the Polyanthus petal to be deeply notched in the centre, so that the circular edge of the Auricula petal is not looked for here.

The centre or eye of the Polyanthus should occupy a wide circular space upon the flower. It can hardly be too wide, and is often not wide and circular enough.

The mouth of the tube should be extremely well defined, and even most slightly raised above the level of the centre. As in the Auricula, the tube should be filled with bold anthers up to the surface, with the stigma almost sessile below; and all flowers should expand equally and well.

These are the points to be attained and strengthened in the improvement of the florist Polyanthus; and it will readily be seen how far these lines of beauty, which give such brilliance, purity, and refinement, lie beyond the comprehension of the common garden border strains, and how far too few are the beautiful florist Polyanthus we have that fulfil this standard.

## THE PRIMULA EXHIBITION AND CONFERENCE.

APRIL 20TH AND 21ST.

The weather continued unfavourable so late in the season that the most hopeful of those who had interested themselves in the proposed Primula Conference began to entertain grave doubts if they would obtain a sufficient number of entries to make a good representative show. Until quite recently this uncertainty was not removed, and the display provided on Tuesday was a surprise to many of those present. Never have so many species and varieties of the genus *Primula* been shown together before, and the numerous admirers of these plants had an opportunity of studying their favourites in all their varied forms. We have grown accustomed to the displays of richly coloured and costly Orchids, showy Pelargoniums, Begonias, and other plants, but it was quite a relief to turn to these simple yet beautiful flowers, so fresh, pleasing, and unobtrusive. Regarded merely from an effective point of view it would not be considered as sufficiently bright by those who admire the gaudy tints of the plants above mentioned, but there were scores of pretty plants, not large enough to make a great display individually or collectively, yet extremely interesting. There was a good proportion of really useful garden plants, chiefly varieties of the *P. vulgaris* type, with brightly tinted flowers, the charming *P. rosea*, and the pure white *P. nivalis*, while there were also large numbers of species, perhaps nearly one-half, that would never become popular plants though well worth including in collections.

It would be unnecessary to enumerate in this report all the species and varieties shown, and in the following notes it has only been attempted to point out the most distinct, handsome, or remarkable. A full detailed report will probably result from the labours of the Conference, and in this we may expect to see many of the errors corrected which are now only too obvious in the nomenclature. There has been much confusion amongst the Primulas, and one highly important practical result from this gathering will be that some hundreds of plants will be returned to their homes under correct names.

The Primula exhibits occupied a table the whole length of the conservatory on one side, a table nearly half the length on the other side being similarly devoted to Primulas and hardy flowers, Messrs. Paul and Sons' Roses, Barr and Sons' Daffodils, and the National Auricula Society's exhibition filling the remainder of the available space, and together constituted both a large and handsome display.

Of the Primula groups the following were the most important:—J. T. D. Llewelyn, Esq., Penllergare, Swansea, had a collection of well-grown plants, the most conspicuous being varieties of *P. Sieboldi* with *P. japonica*, *P. verticillata*, *P. cashmeriana*, the old double crimson Primrose, *P. obconica*, very fine, *P. intermedia*, and *P. viscosa* varieties, together with the typical *P. Auricula*, which was collected by the exhibitor on the Pyrenees. G. F. Wilson, Esq., Weybridge, had an interesting series of violet-crimson Primroses, seedlings from Scott-Wilson, and including the beautiful variety Alice Wilson, which was certificated last week. Some exceedingly fine spikes of *P. denticulata* were shown from the open



border, and Mr. Wilson says it grows as freely in his garden as the common Primrose. From the Royal Gardens, Kew, was contributed the largest collection in the Exhibition, comprising plants of 118 species and varieties, though necessarily these included many that were not in flower, as it would be impossible to obtain so many forms in their best condition at one time. Some of the most notable were *P. cortusoides*, *P. vulgaris*, *P. Sieboldi*, *P. viscosa* varieties, *P. denticulata* cashmeriana, *obconica*, *Obriati*, *involucrata*, and *spectabilis* Wulfenianiana. Forty-eight coloured plates of Primulas were also shown with this group. A smaller but very good collection was sent from the Royal Botanic Gardens, Edinburgh, the most remarkable plant, and indeed one of the finest in the conservatory being *P. obconica*, which had thirteen handsome trusses of large flowers. This plant was greatly admired, and afforded ample proof of what good culture can effect with this useful Primula. With these were several *Androsaces*, the one named *rotundifolia macrocalyx* having a very uncommon appearance, each pale pink flower having four large spreading calyx lobes beneath it, something like the curious old Polyanthus with large green calyxes.

Dr. Robert Hogg exhibited plants of the common English Oxlip and the true Bardfield Oxlip, together with a seedling that had been obtained from the latter, having pale purplish flowers, very pretty; and two seedlings from this had still more strongly marked characters, the flowers being tinged with red. It was an interesting series, showing the gradual changes effected, although it has been thought that the Bardfield Oxlip does not produce seed. Messrs. J. Backhouse & Son, York, had a large collection, comprising a number of varieties of *P. vulgaris*, *P. marginata*, and *P. denticulata*, with the bright yellow dwarf *P. floribunda* and innumerable others, *P. ciliata* purpurea, with rich crimson purple flowers, being one of the most effective. Several choice hardy plants were included, a bright purple variety of *Polygala Chamæbuxus*, a handsome *Darlingtonia californica*, and the pretty *Daphne Blagayana*. Messrs. J. Veitch, Chelsea, showed a group of Primroses very bright and varied in colours, the single white and double yellow and lilac forms of *P. vulgaris* being extremely good. With them was *P. obconica*, one of the Veitchian introductions, *intermedia*, *involucrata* *farinosa*, and the most diminutive Primula in the Exhibition, *P. mistassinica*. This had leaves about half an inch long, flower stalks an inch high, bearing one or two star-like white or pale blush flowers. It is a North American plant and was one of the curiosities of the Show, contrasting strangely with a gigantic form of Auricula in Mr. Dean's group. A so-called "hybrid Primula" was shown by Mr. T. Walkden, Marsland Road, Sale, which was said to have originated in the following manner. Some plants of *P. nivalis* were grown in a frame with ordinary Auriculas, with the object of procuring a cross if possible, though this was not attempted artificially. Seed was obtained, and from this the plant shown and two or three others were raised. It had large white flowers and a pale yellow eye, a stout truss, and green notched leaves, the general habit being similar to the Auriculas. Mr. R. Deau, Ealing, showed a series of Primroses, such varieties as Cloth of Gold, Crimson Beauty, and Scarlet Gem being very noticeable for their brightness of colour, the hose-in-hose Jackanapes and several unnamed seedlings being similarly good. The giant of the Show has already been mentioned: it was in the form of the double Alpine, with flowers 2½ inches in diameter and partly double, some of the stamens being petaloid.

Messrs. Paul & Son, Cheshunt, contributed a group of *P. acaulis* varieties, *alba plena*, major, *Croussei* *purpurea*, and others, together with many choice species and a few *Androsaces*. Miss Jekyll, Munstead Grange, Godalming, exhibited a number of varieties of the common Primrose, arranged in moss to form a bank, which some considered very tasteful. E. G. Loder, Esq., Floore Weedon (gardener, Mr. C. J. Goldsmith), showed sixty pots of Primulas, representing most of the best species in flower at this time, and some of which have already been noted. Mr. F. W. Moore, Royal Botanic Gardens, Glasneven, Dublin, had eighteen varieties of Primulas, which had suffered considerably in transit. Mr. T. S. Ware, Tottenham, supplied an extensive collection of miscellaneous hardy flowers, together with many Primulas arranged in the groups adopted by Stein. About 109 species and varieties were represented, but only a few of these were in flower. Smaller collections were contributed by Mr. J. Poë, Nenagh; Mr. P. J. Worsley, Clifton; Professor Kanitz, Kalossvar, Hungary; and from the Society's Gardens, Chiswick. Messrs. G. Bunyard & Co., Maidstone, showed some hose-in-hose Polyanthus; Mr. G. Lee, Clevedon, a plant of *Primula cashmeriana*; Miss C. M. Owen, Knockmullen, Gorey, Ireland, a variety of *P. vulgaris* with green flowers; Messrs. R. Veitch & Son, Exeter, had several white and blush varieties of *P. acaulis* from the open ground; the Hon. and Rev. J. T. Boscawen, Lamorran, Probus, Cornwall, exhibited fifty bunches of wild Primroses most varied in colour, white, yellow, rose, lilac, and crimson; and Mr. W. Roupell, Roupell Park, had a basket of seedling Auriculas, differing greatly in their tints.

Several species and varieties of Primulas were certificated, and amongst them the small *P. mistassinica* already noted in Messrs. J. Veitch & Sons' collection, and a grand variety of *P. rosea* from Mr. J. T. D. Llewelyn; but particulars of the others which were unnamed must be reserved to our next issue.

**Miscellaneous Exhibits.**—An imposing group of forty dwarf and standard Roses was shown by Messrs. Paul & Son, Cheshunt, the plants being strong, healthy examples, with vigorous foliage and fresh bright blooms, the best we have seen this season. Innocenti Pirola, Beauty of Waltham, La France, Hippolyte Jamin, Souvenir d'un Ami, White Baroness, Catherine Soupert, Senateur Vaisse, and Mad. de Montchateau. Messrs. Barr & Son, Covent Garden, had one of their extensive groups of Daffodils in all the best varieties. Mr. B. S. Williams, Upper Holloway, staged a choice group of stove and greenhouse plants, Orchids, Ferns, Palms, &c. Messrs. J. Pearson and Son, Chilwell, showed twenty-four varieties of Zonal Pelargoniums, exceedingly bright; and Messrs. H. Cannell & Sons, Swanley, had a group of double Cinerarias, purple and crimson, the blooms very full and bright. Messrs. J. Cheal & Sons, Crawley, exhibited a collection of sixty-four dishes of Apples, the fruits fine, firm, and handsome; it is seldom, in fact, that such well-kept Apples are exhibited at this time of year. Some of the varieties best represented were Alfriston, Curl-tail, Reineette du Canada, Blenheim Pippin, Emperor Alexander, Ribston Pippin, Winter Queening,

Lady Henniker, Royal Russet, Betty Geeson, Mère de Ménage, Gloria Mundi, Cox's Orange, Winter Pearmain, Cellini, and Lane's Prince Albert. The other not competing exhibits, chiefly Auriculas and Polyanthus, are referred to in the report of the Auricula Show.

## THE NATIONAL AURICULA SHOW (SOUTHERN SECTION).

APRIL 20TH.

THE annual Show at South Kensington opened on Tuesday last, but, owing to the northern growers being unable to compete, it was not so thoroughly representative as those in preceding years. The season has been a most trying one, the plants were late, it became necessary in many cases to employ a little extra heat to bring the flowers out in time for the Show, and the result was seen in the long-drawn truss stems which characterised nearly every collection. There was also in several cases a roughness in the blooms which generally accompanies the other evils induced by unduly hastening these plants, for the best grown Auriculas can only be had in true exhibition form when brought on as gradually and naturally as possible. Amongst so many there were of course some exceedingly handsome plants, and that selected as the premier Auricula—Headly's George Lightbody in Mr. J. Douglas's first-prize twelve—was a superb example of that fine variety. The truss was stout and bore nine large but clean even pips, beautiful in outline, with edge, body colour, and paste well proportioned, and tube bright. This variety was far the best in the classes, and the plant well merited the honour.

Seedlings were not numerous shown, and only four prizes were awarded as follows:—In the edged classes to Mr. J. Douglas for Snowdown's Knight, a white-edged variety of his own raising, a medium-size flower with a good edge, dark body colour, solid, pure, and well-defined paste, and a bright tube; and to Mr. J. T. D. Llewelyn for Charles Warrington, a grey-edged variety with a strong truss of five large pips, all the parts well proportioned and with a very bright tube. Mr. H. Bolton obtained two prizes with self; Mrs. W. H. Bolton (Bolton), very deep maroon, nearly black, and Mrs. Wilson (Bolton), violet purple, the pips of great size. Both are beautiful varieties of good quality.

### SHOW AURICULAS.

In the class for twelve Auriculas the champions usually try their skill, and so it was this season, but the absence of the Rev. F. D. Horner lessened the interest of the competition, which was confined to Mr. J. Douglas, gardener to F. Whitbourn, Esq., Great Gearies, Ilford, and Mr. C. Turner, Slough, who were awarded the first and second prizes in the order named. The varieties in the premier twelve were Campbell's Pizarro, Simonite's Rev. F. D. Horner, Trail's Prince of Greens, Douglas's Mabel, Duke of Albany, Verdure, and Conservative, Leigh's Colonel Taylor, Heap's Smiling Beauty, Turner's C. J. Perry, Headly's George Lightbody, and Dr. Horner. All the plants were somewhat "drawn," but Mr. Douglas gained in freshness and substance. The same exhibitors held the similar positions in the class for six Auriculas, but were there followed by J. T. D. Llewelyn, Esq., Penllergare, Swansea, and Mr. Hardwidge, 1, Martineau Road, Highbury Hill, N. Nine competitors entered with four varieties, Mr. T. E. Henwood, Earley, Reading, leading with Horner's Sapphire, Lancashire's Lancashire Hero, Douglas's Conservative, and Headly's George Lightbody, strong plants with good blooms. The other prizes in that class were awarded to Mr. C. Phillips, Earley, Reading; A. Potts, Esq., Hoole Hall, Chester; Mr. W. C. Walker, Reading; and Viscountess Chewton, Bookham Lodge, Cobham (gardener, Mr. A. J. Sanday), in the order named. With two varieties ten exhibitors entered, Mr. A. Potts leading with Headly's New Green and Read's Acme. Mr. C. Phillip; H. A. Rolt, Esq., 170, Hartfield Road, New Wimbledon; J. Galsworthy, Esq., Coombe Warren, Kingston (gardener, Mr. C. Orchard), and Mr. W. C. Walker following closely.

**SINGLE SPECIMENS.**—The entries in these classes were not so numerous as usual, and the Judges had less difficulty in making their awards, the prizes going as follows:—*Green-edged*—Mr. C. Turner, first and second with George Lightbody and Lancashire Hero; Mr. J. Douglas third and fourth with Prince of Greens; Mr. Henwood fifth with Colonel Taylor; and Mr. Potts sixth and seventh with New Green and Prince of Greens. *Grey-edged*—Mr. C. Turner first and fourth with George Lightbody and Richard Headly; Mr. J. Douglas second and third with George Lightbody; Mr. W. G. Walker fifth with Richard Headly; and Mr. C. Phillips seventh with George Lightbody. *White-edged*—Mr. A. Potts first and fifth with John Simonite and Beauty; Mr. J. Douglas second and third with Acme and Conservative; Mr. C. Turner fourth and sixth with Acme and True Briton; Mr. Henwood seventh with Acme. *Selfs*—Mr. Bolton first and fifth with Black Bess and a seedling; Mr. Henwood second with Pizarro; Mr. C. Turner third and sixth with C. J. Perry and Lord of Lorne, and Mr. Potts seventh with the same variety.

In the class for fifty Auriculas, not less than twenty varieties, Mr. J. Douglas and Mr. C. Turner were the only exhibitors, being placed respectively first and second, the former having a larger proportion of edged Show varieties, while in the Slough collection selfs were prominent.

### ALPINE PLANTS.

The classes devoted to these are invariably more attractive to the general public than the Show varieties, which are so highly appreciated by the florists. The Slough collection is particularly strong in Alpines, and Mr. C. Turner has usually scored well in these classes. On this occasion the giants from the same establishment were first both for twelve and six varieties, the former comprising Sceptre, Edith, Unique, Sir H. Darvill, J. T. Poe, Sensation, Princess of Wales, Mrs. Thomson, J. J. Colman, Hotspur, Charles Turner, Athlete, all, we believe, having been brought out by that firm. The leading varieties in the smaller class were Progress, Mrs. Ball, Paragon, Mrs. Pope, Mrs. Thomson, and Edith. The second prizes being secured in each class by Mr. J. Douglas, Mr. R. Dean third, and Mr. C. Orchard fourth with six. For a single specimen gold centre Mr. C. Turner was first and fifth with Sunrise and John Ball, Mr. J. Douglas second and third with Rosamond, and Mr. R. Dean fourth with Mrs. Thomson. The prizes in the corresponding class for white or cream centre varieties being secured by the following—Mr. C. Turner first and third with



Marguerite and Miss Taplin, Mr. R. Dean second with Tenniel, and Mr. J. Douglas fourth and fifth with Lady Howden de Walden.

#### POLYANTHUSES AND MISCELLANEOUS.

The Polyanthuses were not so numerous or good as usual, that fine variety Cheshire Favourite standing out prominently amongst them. There were two entries of six gold-laced Polyanthuses, but one of these was disqualified because some of the flowers were pin-eyed; the other was from Mr. J. Douglas, who was adjudged the first prize, his varieties being Saunderson's Henry I., Barlow's John Bright, Saunderson's William IV., Cox's Prince Regent, Buck's George IV., and Lancashire Hero. For three varieties Mr. Walkden was first, showing Exile, Cheshire Favourite, and a seedling, Mr. J. Douglas and Mr. J. T. D. Llewelyn following. Mr. Walkden was also first in single specimen class with Cheshire Favourite, Mr. R. Dean third, fourth, and fifth with George IV., Prince Regent, and Lancer; Mr. J. Douglas being sixth with Formosa.

Fancy Auriculas were well shown by Messrs. Douglas and Bolton, who won the first and second prizes. Mr. R. Dean and Messrs. Paul & Son were the prizetakers for twelve Fancy Polyanthuses, both exhibiting brightly coloured varieties, and the same exhibitors were placed in like order for twelve double and single Primroses of similar merit to the foregoing. Mr. J. T. D. Llewelyn had an admirable premier collection of Primulas in the class for twelve not less than six distinct species, Mr. J. Douglas taking the second place with smaller plants.

#### SPRING-FLOWERING HEATHS.

THOUGH large numbers of such *Ericas* as *hyemalis* and *gracilis* are now grown, many very beautiful species are much neglected. It is easy to have a number in flower at this time of year which would be welcome in greenhouses and conservatories to relieve the monotony of ordinary forced bulbs and other plants. The following is a selection of half a dozen easily grown Heaths that should be in every collection:—

*E. colorans superba*.—A shrubby erect-growing softwooded kind, having linear obtuse downy light green leaves arranged in fours. Flowers

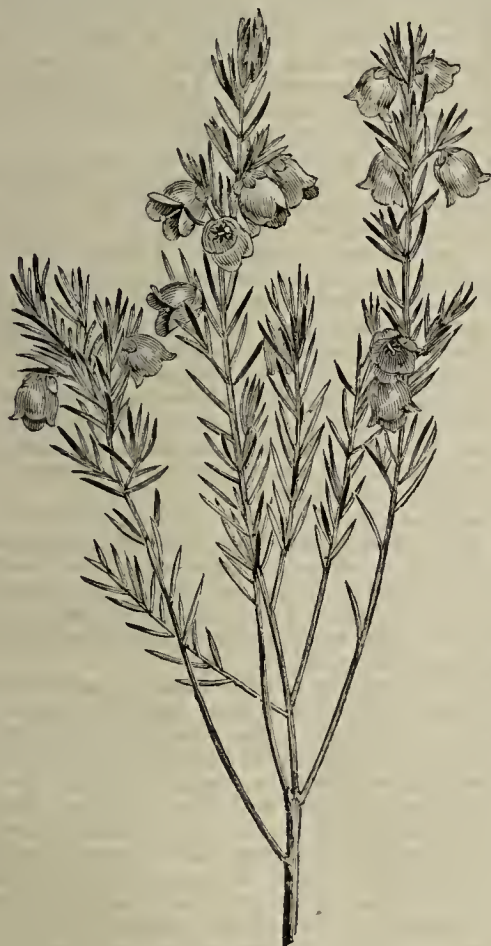


Fig. 54.

produced in clusters towards the ends of the branches, and forming dense racemes of tubular bell-shaped pendulous blooms, which are pure white in a young state, but change with age to rose colour (fig. 54).

*E. regerminans*.—A twiggy, compact, softwooded plant of free growth. Leaves arranged in fours, linear, obtuse, and dark green. Flowers small, bell-shaped, produced in clusters at the ends of all the branches, pale purple in colour, and sweet-scented.

*E. Linnaeana superba*.—A robust-growing variety of great beauty. Leaves arranged in threes, linear, obtuse, and villous. Flowers large, tubular, hirsute, terminal on the small branches, forming long dense racemes lower portion of tube rosy purple, mouth white.

*E. canaliculata*.—Leaves in threes, linear, obtuse, plain above, channelled below, and deep green; the footstalks long and coloured. Flowers nodding, bell-shaped, in threes at the ends of the small branches pale purple in colour.

*E. campanulata*.—An elegant slender-growing plant. Leaves sub-



Fig. 55.

ulate, smooth, and arranged in fours, light green. Flowers pendant, usually solitary, bell-shaped, and clear yellow (fig. 55.)

*E. persoluta*.—Leaves linear, obtuse, light green. Flowers small, bell-shaped, produced in great profusion upon all the small branches, and forming long and dense racemes of a deep bluish colour. There are two varieties of this plant—viz., *alba* and *rubra*, the former producing pure white, and the latter deep red flowers.—G. W. H.

#### AMMONIA IN VINERIES.

A GENTLEMAN who has of late years devoted many of his leisure hours to the pleasurable occupation of gardening, and who is particularly interested in Grape culture, has arrived at the conclusion that an artificially-created ammonia-charged atmosphere must be beneficial to the contents of the vinery. As far as he was concerned the idea was original enough, but as many readers of this Journal are aware it is far from being novel, though I believe very few modern gardeners now think of affording the Vines any food through their leaves, and not a few would argue against the possibility or advisability of so doing. In any case I have promised to give my own views on the subject, and am open to contradiction or correction if they are found to be incompatible with the theories or practices of men qualified to express an opinion on the matter.

According to chemical authorities the atmosphere consists principally of two gases—nitrogen and oxygen, with small portions each of aqueous vapour and carbonic acid gas. In addition it also contains a small portion of ammonia, and in places near the sea muriatic acid. The quantity of aqueous vapour varies exceedingly with the temperature and the locality, but the proportions of nitrogen, oxygen, and carbonic acid gas are nearly constant at all temperatures and in all situations. It thus appears that we may easily dissipate the aqueous vapour and ammonia, and which we most frequently do in our dry overheated houses. By occasionally damping the floor, walls, and stages of our houses we maintain the requisite moisture in the atmosphere; but how often do we think of replacing the ammonia driven



out of the top ventilators? Ammonia is created by the natural decomposition of animal and vegetable substances, but being naturally light ascends very rapidly, especially in a somewhat dry atmosphere. It is brought back to the earth by the rains, the latter also absorbing some of it, hence its softness and superiority for watering and other purposes. Who of us has not revelled in the smell accompanying rain falling after a spell of dry weather, or who has failed to observe how rapidly plants grow under its influence? It is the ammonia we detect, and it is this, accompanied with an increasing amount of aqueous vapour, that proves so favourable to vegetation generally. What is to prevent us imitating or even improving on Nature in this respect, as we like to flatter ourselves we are always doing in other ways?

No one with any practical experience will dispute that Vines are apt to break strongly, evenly, and quickly when under the influence of aqueous vapour and ammonia. The vapour has too long had the credit for this good work, when in reality much of it is due to the ammonia, with its softening influence accompanying it. While this heap of manure and leaves remains in the house the frequent syringings and dampings serve to hasten decomposition, and a small quantity, it may be sufficient, ammonia is given off, but it is usually removed soon after the Vines have commenced active growth, and no other steps are taken to provide the necessary supply. I repeat necessary supply, as I am of opinion that a certain quantity is most beneficial, and further ammonia is very frequently more absent in vineries than it is the various forcing and plant-growing structures, where both liquid and artificial manures, in which ammonia largely predominates, are employed at certain intervals. When plants of Cucumbers and Melons are approaching the trellis of a house they make much more rapid progress than heretofore, and the foliage and stems increase in size and thicken surprisingly fast; while the Grape leaves are always the finest and thickest in texture at the top of the house. In one case the increased amount of heat and light to which they are subjected has the credit for this improvement, and the largest share of the sap with more air is usually considered the principal agents in the formation of this superior foliage, coupled with larger bunches of fruit; but who can positively assert that the ammonia, which is bound to accumulate at the highest points, does not materially benefit the foliage and plants in each instance?

If we are allowed to take it for granted that ammonia in the atmosphere does act most beneficially upon plant life, what we have next to determine is the quantities that the leaves imbibe, the amount in excess that would prove injurious, when and to what it would prove injurious, and how best to keep up the requisite supply in our vineries. It is in these respects we require the assistance of others more experienced, as well as scientific readers, and I hope to gain some useful information on the subject. That it will do good I have had fair opportunities of observing, independent of what is done by Nature in the open, and that an incautious use of materials highly charged with ammonia will work much mischief I have also had good evidence of, though not in vineries after the foliage is developing. One excellent and well-known gardener that I served under was a firm believer in the advantages attending an artificially created ammonia-charged atmosphere, and in those days he grew Black Hamburgh and other Grapes to perfection, and won several good prizes with them. Another gardener, an old master and friend of mine, who cultivates Grapes still more extensively, and annually wins numerous prizes at some of the best shows in the country, also has his own method of keeping up the supply of ammonia, believing this to both benefit or feed the foliage, and also act as a preventive of red spider. The first-mentioned gardener used to fill the evaporating troughs on the hot-water pipes with fresh horse manure, and in this manner the aqueous vapour and a good supply of ammonia, quite sufficient in fact, was maintained. In the other instance the floors of the houses were damped down twice a week with weak guano water, and this again is a safe and sure method of supplying ammonia, and much preferable, as being agreeable to the senses, than farmyard liquid manure, though the latter contains a great amount of ammonia. I should not think of attributing these successes in Grape culture solely to this practice of charging the atmosphere with ammonia, as this was only one important detail in a generally good routine.

It remains to be added that the ammonia is assimilated by the leaves when these are considerably advanced and capable of performing their functions, and that only small quantities are thus absorbed. Consequently it will be seen that frequent small doses or a constant weak supply is both preferable, and, as I shall attempt to prove, much safer than an occasional strong dose. As before stated, no case of injury to Vines from an overdose of ammonia has come under my notice, but I have seen some perilously narrow escapes. A friend of mine has the advantage of being able to secure good supplies of covered farmyard manure, and this is so very rich in ammonia that a liberal top-dressing to a Vine border in an early house gave off, when the house was first closed and damped down, sufficient to fetch off all

the leaves on strong plants of white Indian Azaleas, as well as other plants, being forced; but as the Vines were not in leaf no mischief resulted to them. Here we have injured the foliage of Tomatoes by an incautious addition of soot to soil with which lime had been freely mixed before it was carted to us, this at the time being our only available loam. Having previously observed how much injury was done by confined fumes of ammonia from soot with which lime has come in contact, a repetition of this occurrence would not have happened had I been aware of what was going on. Probably others can give more striking instances where ammonia in excessive quantities has proved most injurious, and I can easily imagine that both the delicate foliage and newly set berries of the Grape would be the first to suffer from it.—W. IGGULDEN.

[There is much danger in the excessive use of ammonia in vineries when the foliage and fruit are in the condition indicated—namely, young and tender.]

### THE DAFFODIL.

[A paper by the Rev. C. Wolley Dod, read at the Horticultural Club, April 14th.]

I HAVE been asked to open a discussion on the Daffodil. I therefore confine myself to the Daffodil proper. The subject of these notes is the Trumpet or Ajax Daffodil (*Narcissus Pseudo-Narcissus*) and its varieties. First as to the name Daffodil. In old English, say Parkinson's time, nearly 300 years ago, the word Daffodil was used as an equivalent of the Latin and Greek flower name *Narcissus*. The *N. poeticus*, the *N. tazetta*, the *Jonquil*, the *N. triandrus*, and the rest of that class were all called Daffodils, whilst to the Trumpet Daffodils the name *pseudo-Narcissus* or False Daffodil was given. Usage, however, has transposed these names. We now call the Trumpet flowers Daffodils, and most of the other kinds *Narcissus*, and it is not desirable to interfere with usage in these matters, or to try to force changes of popular names. By the name Daffodil, therefore, we mean the Trumpet Daffodil, excepting, however, the Hoop Petticoate, which, though anciently called *Pseudo-Narcissus* by Clusius and others, are quite distinct in kind. Of these Trumpet Daffodils, Linnaeus, who wrote in the middle of last century, made five species; and Haworth, who wrote half a century ago, and whose nomenclature has been in a great measure adopted both by English and by foreign botanists, made twenty-nine species.

Mr. Baker, however, in a review of the genus *Narcissus*, written seventeen years ago, includes all the Trumpet Daffodils in one species called *N. Pseudo-Narcissus*, retaining, however, the five Linnæan species of it as sub-species or sections, under which he classes, with Haworth's names, the principal known wild varieties. I shall follow this arrangement, giving reasons, however, for one or two exceptions. I shall use the name *Pseudo-Narcissus* in three ways, distinguishing as follows:—

- 1, *Pseudo-Narcissus* the species, including all the Trumpet Daffodils.
- 2, *Pseudo-Narcissus* the sub-species or section, as admitted by Mr. Baker; and
- 3, *Pseudo-Narcissus* the type, the average form of the English wild Daffodil or Lent Lily—the Garland of old writers. Most of you are well acquainted with the technical terms for the different parts of the Daffodil, but as there may be a few here who are not, I will spend two or three minutes in defining them, that what I say afterwards may be more clearly understood. I need not define the bulb.

The flower stalk as high as the first joint is called the scape. The scape in the species *Pseudo-Narcissus* is usually one-flowered, but in a variety, or sub-species, called *muticus*, it is sometimes two-flowered. In most varieties two-flowered scapes are rare. The normal, or regular scape, is straight and upright, but in the form of minor, being slender, apt to bend downwards. The scape in *pseudo* is more or less compressed or acapitous, and more or less hollow.

THE LEAF.—This varies in breadth from a quarter of an inch in the form called *minimus*, to an inch in some varieties of the section *bicolor*. It also varies much in thickness. The breadth is not always in proportion to the thickness or length of the leaf, or to the height or size of the flower. The leaves of some varieties are much twisted. In some they are far more conspicuously covered with glaucous bloom than in others. Some taper acutely at the ends, some are very bluntly rounded off, some decumbent, some upright. I cannot find any variety of form in leaf cross sections. As for the number of leaves to each flowering scape, I find that about 70 per cent. have three, the remaining thirty are nearly equally divided between two, four, and five leaves. In the section *bicolor*, however, the larger number of flower scapes have four leaves belonging to them, and some as many as seven. In estimating this number care must be taken not to confuse the leaves belonging to different centres of growth in the same bulb. A bulb may produce only one flower scape and twenty or more leaves, but then there are three or four centres, each of which will develop a new bulb as the growth matures.

At the top of the scape there is a sort of joint or valve, where begins a membrane called the spathe, which entirely envelopes the flower whilst in bud. It sometimes fits tight and close, sometimes is very loose, either at the base or at the point, or both, as if far too large for the bud it encloses. Beginning also at the valve of the spathe is a distinct stalk, more slender than the scape, called the pedicel. Two-flowered scapes have two pedicels, but only one spathe. The pedicel connects the scape with the seed pod or fruit. It is mostly in this pedicel that the bending or deflexion takes place upon which depends the angle of the flower to the scape. The pedicel may be quite straight or turned at right angles to the scape at the spathe valve, or bent into a complete semicircle, or any interme-



diate form. The commonest form is that of a quadrant, or fourth part of the circumference of a circle. The seed pod, which we will call the fruit, is round or elliptical—i.e., oval, furrowed, or smooth, and should be studied when swelled to its full size.

Immediately above the fruit is that part of the flower in which the base of the style and the filaments are fixed, and which in *Pseudo-Narcissus* is like a funnel or an inverted cone. This is called the tube. It is important to remember this name, because we often find the word tube wrongly applied to the part I shall next describe—viz., the trumpet, called by some botanists the trunk, but which I shall speak of as the corona or crown. This begins where the tube ends, and from the line of juncture of the tube with the corona there grow out six flower leaves, sometimes called limbs or segments, but which I shall call divisions of the perianth. They correspond to petals and sepals alternately; the three which represent sepals generally overlap at their edges and base the three inner, which represent petals. When this is so the divisions of the perianth are said to be imbricated (which properly means arranged like the tiles on the roof); but if the divisions when closed so as to touch the corona do not overlap, especially near the base, they are said to be not imbricated or free. I ask you to attend especially to the above important character.

Next we find that the divisions are sometimes shorter than, generally just the same length as, often a little longer than the corona. The perianth divisions are often twisted, or in some forms doubled back along the central line, and curved like a horn towards the end of the corona. The shape of the corona is rather cylindrical, the sides when looked at in profile being parallel, or it approaches a funnel in shape, the boundary lines diverging from the base to the mouth, or (rarely) it is larger at the middle than at either end, its shape is then called ventricose. The mouth of the corona varies more than any other part of the flower in the forms of *Pseudo-Narcissus*. In some forms we find at the mouth hardly any enlargement in the diameter of the straight corona; more commonly the corona bulges out near the mouth, but without turning back, whilst in many varieties the mouth spreads and is recurved like the mouth of a trumpet. Recurved is a better word to express this form than reflexed, which implies an angular and less gradual turn. The petals of a *Cyclamen* are reflexed, those of a *Martagon* recurved. With rare and abnormal exceptions the mouth of the corona is divided by incisions—more or less deep according to the variety—into six equal lobes corresponding to the six divisions of the perianth. When the flower becomes double these divisions or incisions are continued to the base of the corona, so as to split it up into six parts. The lobes are often cut up at the edges by irregular notches, generally wedge-shaped, and varying in depth, into smaller divisions of uncertain size and number. This is called crenation, and the lobes are then called crenate—that is, notched. When the parts between these notches are doubled up together like a piece of crimped paper, or a nearly closed fan, the edge of the corona is called plicate (or folded), and when these folds are pushed together so as to displace one another into a sort of flounced or puckered outline, it is called crispate (fringed or fimbriated), the edge then resembles a leaf of garden Parsley or Curled Kale. It is a rare form.

Now, what are these characters worth in estimating varietal differences? Not much taken singly, but several together, if found to be constant, are worth a good deal. Some who have studied *Daffodils* have thought the mouth of the corona so important a character as to supersede all others in deciding varieties. Next to this in importance comes, I think, the arrangement of the perianth divisions, the question whether they are imbricated or free. The length of the pedicel is moderately constant, according to the variety. The relative length of the style and the filaments often differs in the same variety, but Herbert, a careful botanist who studied *Daffodils* about the same time as Haworth, thought that he had observed that in some varieties of *Pseudo-Narcissus* the six filaments are attached to the base of the tube in two different rows. This arrangement of the filaments in a double series is an obvious character in many species of *Narcissus*; but after examining a large number of *Pseudo-Narcissus* I have not been able to discover that any difference of length of the six filaments exists in any variety. This should be observed. The same botanist, Herbert, attached importance to the wrinkling or furrowing often observable in the fruit and to its shape; neither is very constant, but both are worth notice. The comparative length of the perianth divisions and the corona often varies in the same variety, as anyone who will spend a little time amongst a bed of English wild typical *Pseudo-Narcissus* may satisfy himself. The form of the spathe before opening is also to be noticed. Some varieties may be recognised by this alone. Another distinction, though by no means constant, is the curvature of the pedicel. When the flower is fully expanded, the corona becoming either cernuous—that is, looking downwards, or horizontal, or even perpendicular; the pedicel remaining straight, though this form is generally abnormal; the angle which the perianth divisions, when open, make with the corona is also a character. I find neither the section of the scape nor of the leaf a trustworthy varietal character in *Pseudo-Narcissus*. In *Pseudo-Narcissus* as a species colour is an important point. The varieties are either concolorous or bicolorous—i.e., either self-coloured, the corona, however, being always a little deeper than the perianth, or distinctly two-coloured. The English wild type is never, as far as I know, concolorous, and varies in colour within narrow limits; apparent exceptions to this rule which sometimes occur I believe to be due to cross-breeding. I shall speak of them presently.

*Daffodils* of the same variety rarely vary much in colour. A form of *N. minor* found near Grosse in the Maritime Alps is an important and interesting exception to this rule. It remains to speak of size and time

of flowering. To judge of the former, *Daffodils* must be grown together for a year or two under the same conditions; and as for time of flowering, I find that the time when different individuals of the typical form open their flowers extends over a month, and though the same bulbs are early or late every year alike, one cannot attach importance to the difference.

(To be continued.)



WE have received a copy of the list of the subscribers to the GARDENERS' ROYAL BENEVOLENT INSTITUTION, which also contains the report of the Committee for 1885 and a financial statement for the same period. From this it appears the annual subscriptions amount to £1204 13s., the donations to £771 3s. 6d., and the legacies from Mrs. Dodgson (£450) and J. Sutherland Law, Esq. (£100), to £550: £1655 1s. 4d. has been paid in pensions, and the balance remaining exclusive of the invested capital is £387 5s. 9d.

— DR. PATERSON, Bridge of Allan, sends a fine bloom of Sir Trevor Lawrence's variety of *DENDROBIUM BRYMERIANUM* from a small plant with seven pseudo-bulbs and one growth, the last-made pseudo-bulb 2 feet high, which is somewhat unusual.

— THE usual monthly dinner and conversazione of the HORTICULTURAL CLUB were held at the rooms, 1, Henrietta Street, Covent Garden, on the 14th inst., when there was the largest attendance of members that there has been during the present session. Those present included Mr. John Lee, Chairman, the Rev. C. Wolley Dod, the Rev. F. H. Gall, Dr. Hogg, Messrs. H. J. Veitch, Cousins, George Paul, W. J. Jefferies, T. W. Girdlestone, J. D. T. Llewelyn, George Prince, C. P. Wheatstone, C. T. Drury, R. B. Cater, T. P. Collings, J. T. Cooling, C. Pearson, &c. The discussion was opened by an interesting paper by the Rev. C. Wolley Dod on the *Pseudo-Narcissus* section of *Narcissus*, and was continued by Messrs. Llewelyn, G. Paul, Dr. Hogg, Cousins, and others. The discussion at the next meeting will be opened by Mr. George Paul on the Bog Garden.

— IT will be observed by an advertisement in another column that our correspondent Mr. GEORGE ABBEY is disengaged. In a letter before us his late noble employer expresses his appreciation of Mr. Abbey's services and testifies to his admitted ability; and we know that he is as active and industrious in his habits as he is competent in his vocation. We trust that a gardener so experienced will soon be in harness again, and have scope for the exercise of his skill both as a cultivator and an improver of grounds and gardens.

— THE programme of arrangements issued by the CRYSTAL PALACE COMPANY, SYDENHAM, gives the following as the dates of the Horticultural Exhibitions to be held there this season:—Summer Show, at which forty-five classes are provided, Friday and Saturday, May 21st and 22nd; Rose Show, twenty-eight classes, Saturday, July 3rd; Fruit and National Dahlia Show, September 3rd and 4th; Hardy Fruit and Vegetables, October 6th to 9th, with which the National Potato Show will probably be held, and a Chrysanthemum Exhibition, November 5th and 6th, when there will also be an exhibition of Canadian and Nova Scotian Apples. Exclusive of the Spring Show which is past, a series of five exhibitions is thus provided, at all of which the prizes are liberal in amount. The Horticultural Superintendent is Mr. W. G. Head.

— THE remarkable YELLOW ODONTOGLOSSUM PESCATOREI shown by Mr. Brownlow Knox at South Kensington last week and then certificated, was sold by auction at Mr. Stevens' Rooms on the following day. After a sharp competition it was knocked down to Baron Schroder for £165, and will form an important addition to the many choice Orchids in that collection.

— TOBACCO CULTURE.—Under authority from the Lords of the Treasury the experimental cultivation of Tobacco is to be permitted in the United Kingdom. Any occupier of land intending to plant Tobacco must, on or before the 5th May, give notice to the Secretary of Inland Revenue, Somerset House, setting forth the extent of the land to be planted, and the place, parish, and county where situate. Bond under



approved securities will be required in a penalty of £100 if over an acre of ground is cultivated, and £50 if under an acre, in order to secure that all Tobacco grown and gathered shall be removed to drying rooms and kept there until properly cured, when it shall be packed in bags, bales, or casks of an approved size, and must then be weighed by a revenue officer. After weighing the packages the duty must be paid, or the Tobacco be deposited in an approved Customs or Excise warehouse. An experiment both in the cultivation and preparation of Tobacco will be conducted in the Royal Horticultural Society's Gardens at Chiswick this year under the superintendence of a gentleman who has had experience in the work. Messrs. James Carter & Co., 237, High Holborn, have published a pamphlet in which is embodied a considerable amount of information on the culture and preparation of Tobacco, including cost of production and value of the crop in Belgium.

— WE have received from Messrs. James Dickson & Sons, Newton Nurseries, Chester, blooms of the new Narcissus *SIR WATKIN*. They are very large and handsome, and there is no doubt that this is one of the finest and most effective varieties in cultivation.

— WE are informed that the Council of the Royal Horticultural Society have kindly granted the services of their Chief Clerk, Mr. J. DOUGLAS DICK, to the Royal Commission of the Colonial and Indian Exhibition to act as their Superintendent of Entrances during the Exhibition—a responsible position which Mr. Dick has filled satisfactorily at previous exhibitions at South Kensington.

— THE TWO FINEST POT NARCISSUS.—Opinions will always differ as to colour. I prefer those with white perianth segments and trumpets some shade of yellow—that is, belonging to the bicolor section. Of these *N. bicolor Horsefieldi* comes first in point of time if not in size and beauty. It bloomed with me this year the 10th March without forcing treatment, and lasted until succeeded by *N. bicolor Empress*. Those answer admirably for succession, and now, when the pot plants will have ceased blooming, they will be followed by those in the borders. If pure yellows are preferred, as seems to be now the fashion in London, *Lorifolius Emperor* comes first in tinting and brilliancy. It is now in bloom here.—W. J. MURPHY, *Clonmel*.

— MR. W. ALLMAN, Lymm, sends us blooms of *CHRYSANTHEMUM FAIR MAID OF GUERNSEY* to show what a good late variety it is. He has been gathering similar flowers every week during the winter from two plants, and there are several buds to open yet. The blooms received are very fresh and attractive.

— FLOWERING OF PEACH TREES.—As no one has noticed "T. F. R.'s" complaint on April 8th, the failure does not seem to be general. My experience this season is quite the reverse of his. Our trees both in pots and planted out in late houses have just shed their flowers and have set remarkably well. My employers tell me they have never had such an abundant lot of flowers on them before. The early houses also have first-rate crops, and the first fruit of *Early Beatrice* is ripe to-day, April 17th. Some large trees of *Alexander* and *Waterloo*, &c., removed from the houses to a south-east wall last autumn, are also very full of flowers. As regards the frost causing the damage to "T. F. R.'s" trees, the temperature of our houses when at rest never goes below 32° as a rule, but once this season we had 6° of frost in for two or three hours.—W. H. DIVERS, *Ketton Hall*.

— A CORRESPONDENT, "L. W.," The Gardens, Cookridge Tower, Leeds, sends the following notes:—"SAXIFRAGA OPPOSITIFOLIA SPLENDENS.—It is impossible to speak too highly of the beauty of this bright little Saxifraga, so distinct with its purple rose colour flowers, which it shows to the best advantage with us as it is growing in a rock bed on the lawn. The flowers are solitary, on short erect stems, and are so thickly produced as to quite hide the leaves, which are small, opposite, and densely crowded. We have several varieties of the *Saxifraga oppositifolia* in flower at present, but none so brilliant in colour as *splendens*. We have them planted by the side of a rock and fully exposed to the sun, where we find they grow well. They like a good open rich loam."

— "A VERY rare and minute alpine plant, *SOLDANELLA MINIMA ALBA*, is flowering with us. It has minute round leaves and one flower on a stem, drooping and fringed a portion of its length. Being much smaller than the other *Soldanellas* it requires more care in planting, and should be planted with the most minute alpine plants in a mixture of peat, loam, and sharp sand, and where it will be moist in summer."

— SCIENCE IN HORTICULTURE.—Please allow me to say that the position I hold in relation to "A Lover of Fair Play," page 290, does not admit of my discussing the subject further than to say that I did not intend to be "incorrect or unjust" in my criticism on foreigners, and as he evidently feels aggrieved at my remarks and applies them personally, I wish to express my regret, and assure him that they were not so intended. With regard to what I stated about a noted foreign gardener objecting to employ students from the School of Horticulture at Versailles, my information was from what I considered at the time I wrote an authentic source, but not being at liberty to name it, I must allow that "A Lover of Fair Play" is right and I am wrong.—YOUNG PRACTICALIST.

— THE WROXTON OR HOWARD'S ONION.—Mr. W. Iggulden writes:—"Your esteemed correspondent Mr. Easty asks for the history of this novelty, and I fully expected someone would point out that Mr. Finlay is presumably the raiser, he having named the Onion after the place where he was at one time acting as gardener. To tell the truth, I have long been a little curious in the matter, but waited before seconding Mr. Easty in his request for full information to see if Mr. Finlay or one of his friends would supply us with the facts of the case. Is Mr. Finlay prepared to assert that he actually raised the variety in question? For my part I am strongly under the impression that it is an old friend of mine; at any rate the two, as grown by me last season, could not well be separated, and, strange to say, both are of the same parentage. If I am right in my surmises, the name I have it under—viz., *Howard's Onion*—is correct, and the *Wroxton* ought to be removed from our catalogues."

— MAJOR CAREY favours us with an interesting note on *CHRYSANTHEMUMS AND FLOWERS IN GUERNSEY*. "On reading your number of April 8th, I notice among the list of Japanese *Chrysanthemums* the variety named 'Ethel,' and that the name of the raiser is not mentioned. I beg to inform you that it was raised by me in the year 1876 and sent out by Mr. Dixon. I consider it one of the best varieties, as it never loses its pure whiteness, and the dark centre is almost unique. Another of my seedlings, *Mrs. C. Carey* (raised in 1880 and sent out by Cannell), does not seem to meet in England with the attention it deserves. It is the best late variety, and most floriferous, and also has the advantage of retaining its whiteness until faded. In this island many gardeners grow from 700 to 1000 plants for flowers for exportation, and the number of blooms obtained from each plant is most remarkable. By cutting down the plants of this variety and placing them in heat you can get a second blooming, and last week I was shown six plants which had been thus treated covered with most perfect snowballs, and from which the gardener expected to cut fifteen dozen blooms for the London market. Horticulture is carried on in Guernsey on a very large scale, and the daily steamers carry away tons of flowers to be distributed all over the United Kingdom. Camellias grow out of doors in astonishing profusion, and the more you cut the enormous bushes the more they bloom. One man assured me that he can cut daily 1000 blooms without his trees appearing stripped. Mr. Smith of the Caledonian Nurseries, the raiser of many incurved *Chrysanthemums*, devotes himself now to other branches, and his houses filled with beds of the lovely pure white and highly perfumed *Freeseias*, his out-of-door beds of *Jonquils* and *Daffodils*, varying from white down to the deepest orange, his many-hued *Ixias*, looking in the sun like myriads of gorgeous butterflies, and his show of *Roses* are things to be seen to be believed in."

#### SELECT AURICULAS.

OUR illustration represents a selection of the best Auriculas, good typical examples of the most recent novelties in each class, except in the green-edged varieties, of which the best in all points is still *Trail's Prince of Greens*. They were sketched in Mr. F. Whithourn's extensive and admirably grown collection at Great Gearies, Ilford, under the charge of Mr. J. Douglas, who has for so many years been a successful cultivator and exhibitor of Auriculas. A span-roof house 50 feet long is there devoted to these plants, and the varieties comprise the many fine seedlings raised by Mr. J. Douglas and the Rev. F. D. Horner, together with the older varieties, some of which have delighted florists for half a century or more. The season has not been a favourable one, and the artificial assistance needed to bring the flowers forward has caused in a few instances a slight roughness, but it is such as only the keenest critics would notice, and in general appearance the plants and blooms leave nothing to be desired. It would be a pleasure to refer at some length to the collection and the varieties, but our space is too limited this week to permit it, and further notes must be reserved till another issue.

The varieties shown in the woodcut are as follows:—1, Green-edge, *Trail's Prince of Greens*; 2, Grey-edge, *Silvia*; 3, Grey-edge, *General Graham*, remarkable for its large pip and truss and fine purple body





Fig. 56.—SELECT AURICULAS.—1, PRINCE OF GREENS; 2, SILVIA; 3, GENERAL GRAHAM; 4, CONSERVATIVE; 5, SIR W. HEWETT; 6, PRINCESS OF WALDECK; 7, PRIMULA AURICULA.



colour; 4, White-edge, Conservative; 5, Self, Sir W. Hewett, extremely dark, nearly black; 6, Alpine, Princess of Waldeck, bright red shaded; and 7, the wild *Primula Auricula*, the plant having been collected by Mr. Llewelyn on the Pyrenees. All these except the first and last have been raised by Mr. Douglas and certificated; *Silvia* having been honoured by two societies, Conservative by three, and the grey-edge Mrs. Moore (not mentioned there but included in the following lists) by four. Other varieties of Show Auriculas from the same raiser that have been certificated are Mabel and Marmion, both grey-edges, while of Alpine, Florence, Prince, J. H. Laing, Amelia, and Elwyne have been similarly honoured.

The following is a selection of six of the finest Show varieties in each class as grown at Great Gearies.

*Green-edge*.—F. D. Horner (Simonite), Prince of Greens (Trail), Colonel Taylor (Leigh), Admiral Napier (Campbell), Alderman Wisbey (Headly), and Verdure (Douglas) a new variety, one of the brightest clearest greens of all; the edge spotless, the flower and truss fine.

*Grey-edge*.—George Lightbody (Headly), *Silvia* (Douglas), Mrs. Moore (Douglas), Lancashire Hero (Lancashire), Richard Headly (Lightbody), and Mabel (Douglas).

*White-edge*.—Acme (Read), Conservative (Douglas), John Simonite (Walker), Smiling Beauty (Heap), True Briton (Hepworth), Glory (Taylor).

*Selfs*.—Sapphire (Horner), Duke of Albany (Douglas), Sir W. Hewett (Douglas), Negro (Brockbank), Pizarro (Campbell), and C. J. Perry (Turner).

In other houses and frames is also a choice collection of Primulas and Polyanthus, which are mentioned in the report of the Auricula Show and Primula Conference, while throughout the garden at Great Gearies is a model of neatness.

### LIME FOR VINE BORDERS.

I SHOULD be very sorry for your correspondent "A. L. G." to think that I attribute to any unworthy motive the action he has taken in criticising my articles on this subject. The opposite is the case, and I admire him for his courage in attacking the subject I advanced. His remarks show that he is not a mere imitator, but exercises his thinking powers, and strikes out a course for himself. I did not intend referring to this subject again at present, whatever your correspondent's reply had been, for the object for which my first article was penned has been entirely overlooked. I wish to thank "A. L. G." for his criticism, and to insure him that I at least believe his motive in so doing to be thoroughly honest.—WM. BARDNEY.

### SWANSEA SPRING SHOW.

THIS was held in the Prince of Wales Drill Hall on April 14th and 15th. It is a spacious building with abundance of light coming in from the top and we have never seen a hall in which flowers were seen to greater advantage. The arrangements were all that could be desired, the Chairman and Treasurer being Captain Colquhoun, and the Hon. Sec. Mr. T. D. Lewis, both of whom were unremitting in their labours to make it a success, and they succeeded admirably. Here and there in the body of the hall groups of plants were arranged, chiefly in circles, and all round was banked up with many excellent foliage and flowering plants. In competing for a group of plants, which was the leading class, Mr. Warmington, gardener to J. T. D. Llewelyn, Esq., Penllergare, was accorded the first prize for a remarkably effective collection. A graceful Palm formed the centre, the edge of the circle was fringed with Maidenhair Ferns, Primulas of the verticillata type, Cyclamens, Lachenalias, &c., while the body of the group was composed of Azaleas, Rhododendrons, Spiræas, Ferns, Epacris, &c. The plants here were in fine condition, and the arrangement was first-rate. Mr. Buckmaster, gardener to Sir Henry Hussey Vivian, came second, the Azaleas and Orchids being exceedingly fine, as were many more of the plants, but they had evidently been arranged in a hurry, as they were too crowded; individually the specimens were of a high order. Mr. Harris, gardener to Mrs. Vivian, Singleton, was placed third with a fine group, which displayed more superior culture than taste in arrangement, as the plants here again were excellent and the blossom both rich and profuse, and altogether these three groups reflected much credit on those who cultivated the plants.

For the best collection of twelve cut flowers Mr. Harris was a good first, showing some superb heads of Rhododendrons, Orchids, and Roses. In the hand bouquets Mr. Harris was again deservedly successful, and Miss E. Barron of Sketty Nurseries won in the buttonhole bouquets with attractive brace. In the miscellaneous collection of plants Mr. Stafford, gardener to J. T. D. Llewelyn, Esq., was an easy first with a splendid collection, including Pelargoniums bearing trusses of prodigious size and wonderful colour, Auriculas nicely flowered, herbaceous Primulas, Pansies, &c., altogether an interesting and attractive collection; Mr. Harris was second with another good lot. In the nurserymen's section Captain Mansfield, St. Clear's, was first in the group class with small but excellent flowering and foliage plants; and Mr. Barron of Sketty was second with a first-rate selection of valuable Conifers and Evergreens. Cinerarias were dwarf and well bloomed, and Mr. Farrant, College Street, Swansea, and Captain Mansfield secured the leading prizes. In Azaleas Mr. Farrant and Mr. Speck, Llanelly, divided the honours with healthy finely bloomed plants. In Hyacinths and Tulips Mr. Barron was quite in advance of others and secured both firsts, Captain Mansfield and Mr. Speck following. The bridal bouquets were superb; indeed, we have never seen finer in South Wales. Mrs. Loadstone, a lady florist of Llanelly, was first with a massive, beautiful, and artistic arrangement, excellent; and Captain Mansfield was second with another of a less showy character. In buttonhole bouquets Mrs. Loadstone was a good first, Mr. Farrant being second; and in

wreaths or floral devices Captain Mansfield was first with a very elaborate wreath, Mr. Barron second with one remarkable for its simplicity and sweetness, and Mrs. Loadstone third with another slightly too heavy. In the miscellaneous class Mr. Farrant was first with a group of well-bloomed but small plants, while Mr. Barron was second with many fine plants, rather crowded.

Vegetables were well shown by Mr. Harris and Mr. George Nott. The amateurs were creditably represented by Mr. Morse, Sandore, Mr. Paddon, Mr. Hitchings, and Mr. Waters. Apart from the numerous groups entered for competition, the local nurserymen and florists exhibited large quantities of excellent plants and flowers for exhibition, and in this respect special mention deserves to be made of Mr. Barron of Sketty and Blackpill, Captain Mansfield, Mr. Farrant, Mrs. Loadstone, and Mr. Clare of Temple Street.

### NOTES FROM MY GARDEN IN 1885.—No 2.

#### ROSES.

ALTHOUGH I gave in last year's volume a survey of the Rose season in general, I did not especially allude to my own garden, and indeed had in view rather the Rose as an exhibition flower, and the character of the season as affecting the many shows held throughout the country, and therefore do not feel that I am quite travelling over the same ground in giving these notes of the Rose in my own limited space; and for the reasons I have already given they may be acceptable to some of the readers of the Journal.

I do not exhibit, and therefore do not grow for exhibition; but as I have to so frequently act in the capacity of judge I like to have under my own eye the leading varieties and the new ones as they appear, so that I may be familiar with them when they appear in the stands. I grow them in a separate part of my garden, so that no other flower interferes with them, and they probably receive much the same treatment as they would do were they grown for exhibition, save that I do not disbud so rigorously, nor do I grow maiden plants. Besides this I have a few Teas planted against the wall, so that my season is a tolerably prolonged one. I do not grow any under glass save one plant of *Maréchal Niel*, which I have at the back of my small annexe, where I grow a Vine. This plant is somewhat of a novel character. I had it three or four years ago from Mr. Prince of Oxford, and it was grown in a large pot; the shoots were nailed up to the back of the house, and I expected at most to have got a couple of years out of it. However, it pushed its roots through the hole at the bottom of the pot and into the soil on which it stood. There it has remained, and made some very vigorous shoots, which, however, had to be cut back, as they would have interfered with the other plants in the house, and especially with the Vine. It has borne this treatment very well, as last spring I cut from it about 120 blooms, and it is now showing well for bloom and exhibiting no symptoms of decay, as it flowers and makes growth before the Vine begins to start. The latter does not interfere with it. The wood becomes well ripened. By the time that these were over the Teas and Noisettes on the wall began to develop their blooms. It is a great satisfaction to me that my grand plant of *Rêve d'Or* has so much recovered from what I feared was its *coup de grace* in 1880 and 1881. It has now gone up 12 or 14 feet and bloomed well, and as I have protected it this winter I hope it will do even better this year. Besides it I have in my house that very good climbing Rose Longworth Rambler, which is very hardy and very floriferous, and its colour gives it a great claim, being of a very bright red tint somewhat like *Reine Marie Henriette*, although a much thinner Rose than that variety, but more free-flowering. A plant of that on my gardener's cottage gave some very fine blooms. It is not a colour much beloved of ladies, but still useful. I have also *Madame Berard*, *Belle Lyonnaise*, and *Climbing Devoniensis*, which have all grown most vigorously. *Madame Berard* has too much of the loose growth of *Gloire de Dijon* to be quite what one wants. *Belle Lyonnaise* gave me a quantity of fine bloom, although displaying in most cases the one fault it has—viz., cleft blooms. *Climbing Devoniensis* was most satisfactory; the blooms of it were lovely, and were produced very freely.

I have on the wall *Madame Margottin*, *Perle de Lyon*, *Bouquet d'Or*, *William Allen Richardson*, *Comtesse de Nadaillac*, *Madame Van Houtte*, *Madame Caroline Kuster*, *Catherine Mermet*, and *Ma Capucine*. These all flowered well, and especially *Nadaillac*; indeed the flowers of this lovely variety develop with me some remarkable colouring, so much so that my friend Mr. Biron, no mean judge, told me he never sees it so well coloured elsewhere. I am afraid some of these will have to give way, as they are planted between the Peach trees, which are gradually usurping the space devoted to them. These few Tea Roses are very acceptable to me, as they give blooms before those in the open develop themselves. Teas are of course the first to come in there. I did not prune mine so hard as in the year before, and they did very well. They have, in fact, now quite filled up the beds, and as hard pruning implies more vigorous growth I avoided it mainly for that purpose. Amongst those Teas of more recent date which greatly pleased me were *Madame Watteville*, *Madame Cusin*, and the Hon. Edith Gifford. They are well known, and therefore there is no need of saying much about them. They all seem to be good growers, and, like most of their race, very free bloomers. *Madame Cusin* is quite as dark as I care to see.

The decision formed by the National Rose Society that Hybrid Teas are to be classed amongst and shown as Hybrid Perpetuals, is the only logical one that could be made, for as it is impossible to make a separate class for them, and they cannot be shown as pure Teas or Noisettes, they would be excluded altogether if this were not the decision. Take for example *Lady Mary Fitzwilliam*, what confusion has been made with it. Some assert that it is a Hybrid Tea, others that it has no Tea blood in it,



and as a consequence of this confusion a stand of Hybrid Perpetuals was disqualified because it contained it, while at another place it received the National Rose Society's medal as the best Hybrid Perpetual! It is a very beautiful Rose for those who can grow it, but the general verdict upon it is that it is a most difficult Rose, never making much wood, and delicate in habit; in truth there are not many of these so-called Hybrid Teas that have found very extended favour, and Roses have been so intermixed by hybridisation, whether natural or artificial, that it is exceedingly difficult to say what blood they do or do not contain. One of the foreign growers is, I see, now crossing some of the single Roses with double varieties, and professes to have obtained some varieties that are to be worth growing. *Nous verrons*. We have to take a great pinch of salt when we try to digest many of these high-flown descriptions. As I did not "go in" for exhibiting, I did not last year prune so hard as the year before, wishing to obtain larger plants and more bloom. There is little doubt, I think, that hard pruning will be the rule this season, as Jack Frost must have laid his hand very heavily on the young wood, especially where it is very "lisky," and it is of no use leaving any wood where the pith is discoloured. My plants were well protected with litter, but there was little need for protection last season. When the plants were pruned in the spring the long litter was all raked off, made up into a heap, and made a capital bed for growing Vegetable Marrows; the short manure was all gently forked in. As I have frequently said, my soil is not very good for Roses, but it has been much improved by the addition of some clayey loam. The greater portion of my plants are from three to four years old, but, as I cannot enlarge my borders, some are taken out every year to make way for some of the newer varieties. Of these I had several last year, although nothing was very remarkable amongst them. Mr. Laxton's two seedlings, Bedford Belle and Gipsy, were not sufficiently strong to enable me to judge whether they will be of value as exhibition or garden Roses. Lord Frederick Cavendish is a very brilliant coloured Rose, and bears out the good character it acquired on its first introduction. Ulrich Brunner was very fine with me, as it was everywhere last season, while the fine dry season suited Merveille de Lyon and Violette Bouyer to a nicety, and we had many fine blooms of them. Grace Darling I had not sufficiently strong plants of to judge as to its qualities, for where the plants were either small or had to be lifted, the long dry time was very much against their growing much. It seems, however, to be a very promising Tea. Of Madame Cusin and Madame de Watteville I have already alluded to. There is another which I had, but not before it was too late to judge of it, the new American Rose Sunset, but of which I am inclined to form a high opinion. It has well been described as a very double Madame Falcot, and is a sport from that grand yellow Rose Etoile de Lyon, than which we have no finer yellow garden Rose. I cannot say that as yet the descriptions of Gloire Lyonnaise have been in the faintest degree approached in reality; there has not been in any bloom I have had of it, or any that I have seen, but the very faintest *souppçon* of yellow in it.

It has been often said that however beautiful the Rose may be, its season is a short-lived one. I cannot and do not think this is a correct statement. It is no doubt true that, like most flowers, it has its special season when it is in the height of its glory, and from the beginning of June to the end of July, according to the locality, the "feast of Roses" is held, when the rosery is all aglow with beauty and delightful in its fragrance; but as I have shown, there is to those even whose space is limited an opportunity of antedating that period by the wall Roses and Teas, and although the three weeks in which the rosery is in its full beauty seems but a short time, we must remember that for a long time afterwards Roses are to be obtained in great beauty. The Hybrid Perpetuals throw out a second stock of young shoots, and these have given me some nice blooms on through July and August, the greater proportion not being equal it is true to the first blooms, but still fresh and fragrant; while the Teas afford an almost never-ending supply of beautiful and fragrant blooms, and where these are grown in any quantity they are to be had up even to the dark days of November. I had them myself in my own small garden, and so I am sure that where they are grown in larger numbers it can be easily done.

I have not as yet done much in the way of single Roses, but hope to try a few of them. One, indeed, I had in my small rockery, *Rosa pyrenaica*; but it became such a nuisance that I had to take up some yards of the rockwork and grub it all out—at least, I hope I have done so. But it is a most persistent interloper, getting in under the stones and throwing up its suckers in the midst of some of your most dearly valued Alpine gems. *Rosa rugosa* and *rugosa alba* I have grown, but not as well as I could have wished, for they are very ornamental in foliage, flower, and berry. I have no doubt that the excellent paper of Mr. Girdlestone, and the attention which has been drawn by him and others to the "species" of Roses, will bear good fruit in the future.

There is one misfortune which I have to suffer each year, as far as my Rose garden is concerned—viz., that I am so much away from it in the blooming season. The attendance "on circuit" necessitates this, and I often grieve over it. However, if I do not enjoy my own Roses so much as I could wish I have the pleasure of seeing better blooms of other growers. The time will doubtless come when I shall no longer be able to gad about as I now do, and then I may be perhaps able more thoroughly to enjoy my own garden.—D., Deal.

#### HYBRID ORCHIDS.

A FEW additional notes respecting the list of hybrid Orchids given last week may be useful.

It will be seen from this list that while hybridisers have been very

successful in some genera they have not obtained many results in several others, and in a few they have hitherto failed to secure any hybrids. Thus of *Aerides*, *Anæctochilus*, *Goodyera*, *Phalænopsis*, and *Thunia* one hybrid each has been raised. Of *Chysis* and *Phajus* two each, of *Masdevallia* and *Zygopetalum* three each, of *Lælia* seven, *Dendrobium* and *Calanthe* nine each, *Cattleya* twenty-four, and *Cypripedium* fifty-three, nearly half the total number having been obtained in the last-named genus. In the case of the *Cattleyas* Mr. H. J. Veitch has observed that the "members of the labiata group and also the Brazilian species with two-leaved stems, as *C. intermedia*, *C. Acklandiæ*, &c., cross freely with each other and the Brazilian *Lælias*; but neither the *Cattleyas* nor the Brazilian *Lælias* will cross freely with the Mexican *Lælias*, such as *albida*, *autumnalis*, *majalis*, and *acuminata*, except *L. anceps*." From the same authority we learn that the East Indian *Cypripediums*, though crossing readily with each other, do not cross so freely with the South American *Selenipediums*; and though plants have been raised from crosses between these two sections, they have not flowered yet. No one appears to have succeeded in flowering an artificially raised hybrid *Odontoglossum* up to the present time, although so many are regarded as probable natural hybrids. Mr. Cookson obtained some seedling *Odontoglossums* from a cross between *O. gloriosum* or *O. Uro-Skinneri* and *O. crispum*, but they subsequently died. The late Mr. Spyers, when gardener to Sir Trevor Lawrence, obtained seed from crosses between *O. vexillarium* and other species, but he informed me that he could obtain no seed from crosses between *O. vexillarium* and the *Miltonias*; and I believe it was from the same source that Mr. Bentham obtained the statement he inserted in the "Genera Plantarum" to that effect, and to which Mr. H. J. Veitch objected as contrary to their experience. He has found that by crossing *O. vexillarium* and *Miltonia spectabilis* seed was produced, though it could not be secured from crosses with any other *Odontoglossum*. It does not appear, however, that seedlings have been raised in any case.

As examples of bigeneric hybrids we have crosses between *Anæctochilus* and *Goodyera* and *vice versa*, *Lælia* and *Cattleya*, *Phajus* and *Calanthe*, *Calanthe* and *Limatodes* and the reverse, though in the last instance *Limatodes* is now referred to the genus *Calanthe*, and *Cattleyas* and *Lælias* are very closely allied. Many strange crosses have been made in Messrs. Veitch's nursery. Thus plants have been raised, but not flowered, from crosses between *Cattleya Trianae* and *Sophranitis grandiflora*, *C. Trianae* and *Brassavola Digbyana*, and *C. intermedia* and *Sophranitis grandiflora*. Capsules of apparently good seed have been had from crosses between *Acanthophippium Curtisi* and *Chysis bractescens*, *Bletia hyacinthina* and *Calanthe Masuca*, *Chysis aurea* and *Zygopetalum Sedeni*, *Odontoglossum biconense* and *Z. maxillare*, *Z. Mackayi* and *Lycaste Skinneri*. Abundance of seed has also been secured by crossing *Z. Mackayi* with *Odontoglossums* and other genera, but the seedlings have been invariably proved to be *Z. Mackayi*.

The principal hybrids mentioned in the list under Mr. Seden's were raised by the following orchidists:—

*Anguloa media*, by J. C. Bowring, Esq.; *Calanthe bella*, though sent out by Messrs. Veitch & Sons, was not raised in their nursery; *Calanthe Alexanderi* and *Cooksoni*, by N. C. Cookson, Esq., Wylam-on-Tyne; *Calanthe porphyrea*, by Sir Trevor Lawrence, Bart., M.P.; *Calanthe sandhurstiana*, by Mr. P. H. Gosse, Sandhurst, Torquay; *Cattleya calummata*, by Mr. Alfred Bleu, Paris; *C. Mitcheli*, by Mr. Mitchell, gardener to Dr. R. F. Ainsworth; *C. veriflora*, origin unknown, bought as a seedling at Stevens' Rooms by Sir Trevor Lawrence; *Cypripedium Ashburtoniæ* and *Crossianum*, by Mr. Cross, gardener to Lady Ashburton, Melbet Court, Romsy; *C. Io*, by N. C. Cookson, Esq.; *C. Lecanum*, by Sir Trevor Lawrence; *C. chloroneurum*, *C. meirax*, *C. melanophthalmum*, *C. politum*, and *C. Williamsianum*, by R. Warner, Esq., Chelmsford; *C. concubiferum*, *C. gemmiferum*, and *C. stenophyllum*, by J. C. Bowring, Esq.; *C. Swainianum*, by Mr. W. Swan; *C. Laforcadei*, by M. Bauer, Paris; *C. Sallieri*, by M. Godefroy-Lebeuf [M. Bergman, in "Revue Horticole," October, 1885]; *C. Seedling No. 1*, M. Bleu, Paris; *Dendrobium Ainsworthi*, by Dr. R. F. Ainsworth; *D. Leachianum*, by Mr. W. Swan, when gardener to W. Leach, Esq., Fallowfield, Manchester; *Masdevallia Fraseri*, by Mr. Fraser, Dornoch, Aberdeen; *Thunia Veitchiana* or *Wrigleyana*, by Mr. George Toll, Manchester; *Zygopetalum Clavi*, by Colonel Clay, Birkenhead.

The natural hybrids are mostly introduced forms of exotic Orchids, which are found to be so clearly intermediate between the species named as parents, that they are regarded as the probable result of hybridisation effected by insect agency. Some European forms are, however, included, as in the genus *Coeloglossum*, *Gymnadenia*, *Nigritella*, and *Orchis*, which have been noted and described by continental botanists.—L. C.

#### THE PRIMULAS.

(Continued from page 292.)

*P. TYROLENSIS*, Schott.—This is a fairly common plant in English gardens now, although it rarely flowers so well as it does in its native habitats. On the rockery, even where fully exposed, it grows very freely, forming loose tufts, the stems being apt to become leggy unless pegged down or surrounded with stone debris. It is distinct from all the other Primroses, and easily recognised, from one of the bracts at the base of the flower attaining an uncommonly large size. With us it grows from 3 to 6 inches in height; the leaves ovate or elliptic, hairy, but showing more distinctly at the margins, which are finely serrated



The leaves are prominently veined on both sides; calyx campanulate, the divisions rounded at the apex, pedicels very short or none, at the base of which are two or three narrow linear bracts, the large one being like an ordinary leaf, and about as broad. The flowers are an inch or so in diameter, purplish rose, with a white eye, generally only one on each scape, opening April and May. Exposed situations, rather dry in rich soil, with plenty of granite sand. Native of the Tyrol. Syn., *Allionii*, *Auct.*

*P. VENUSTA*, *Host.*—A hybrid between *P. Auricula* and *P. carniolica*, *Schott.* It is one of the most handsome of the Primulas when well grown, its large clear rosy flowers showing well above the foliage. In the open border or on the rockery it seems to grow as freely as the common Alpine Auriculas, which it much resembles in habit. It forms stiff rosettes of blunt oval leaves, irregularly serrated or notched at the margins. Flowers large, from two to five on a scape, bright rose with white eye. It grows best, partly shaded from the mid-day sun, in rich soil, to which has been added limestone grit. It flowers from the middle or end of March to May. Syn., *Freyeri*, *Hoppe.*

*P. VERTICILLATA*, *Forsk.*, is said not to be in cultivation. The plant cultivated under that name being *P. Boveana*, *Dene.*

*P. VISCOSA*, *Vill.*—Under this Mr. Baker has placed *P. villosa*, *Wulf.*, and together with their many varieties they seem to give more trouble to botanists than all the other Primroses in cultivation. On the continent generally *P. villosa* is held to be a distinct species, and it is said that the true *villosa* is not found in the Central Alps, but only met with in Carinthia and the districts where crystalline limestone predominates. The flowers, it is also said, are twice the size of *P. viscosa*, deep purple rose, with a white ring round the centre, and having an orange yellow eye. Be all this as it may, in our opinion *P. villosa* is not more distinct from *P. viscosa* than the latter is from *latifolia*, *pedemontana*, *decora*, and a host of others generally included under *viscosa*, and which name being the oldest has preference over the other. Typical *P. viscosa*, as we know it, has shiny glutinous or viscous leaves, deeply serrated, as well as glandular at the margins. The flowers are numerous in a head, small, purplish rose-coloured, and having no distinct ring round the eye. This viscoseness of the leaves wears off as we examine the forms in the direction of *P. Simsii*, *ciliata*, &c., varying also in size and shape until we come to the large leaved *latifolia*, with almost every variation in purple of the flowers to the pure white of the handsome *nivalis*. They will thrive in almost any position on the rockery, and may do well in the ordinary border even, with the aid of a few stones round the stems. The finest of the type we have ever seen was grown on a small rockery behind a house facing north-west, apparently quite unmindful of the soot, &c., which had collected largely on its viscous leaves. They flower April and May. Natives of the Alps, Pyrenees, &c. A few of the principal varieties are *ciliata*, *Schrank*; *commutata*, *Schott*; *hirsuta*, *All.*; *latifolia*, *Lap.*; *pedemontana*, *Thom.*; and *nivalis*, *Hort.*

*P. VULGARIS*, *Huds.*—The common Primrose, though possessing none of the gaudy colours of most of the South European species, has a beauty far preferable to theirs—sufficiently so, indeed, to merit a first place in our collections—the more so now, as it is fast disappearing from the spots where a few years ago it was so plentiful. Like many of our old garden or native flowers, its beauties have not been overlooked by the poets—Wordsworth's "Primrose by a river brim," and again by Goldsmith in "The Deserted Village"—

"Her modest looks the cottage might adorn,  
Sweet as the Primrose peeps beneath the Thorn."

In cultivation the Primrose grows best in sheltered nooks or near bushes where it may be protected, and where it opens its flowers about the end of March. There are many coloured varieties in cultivation at the present time, one pure white, very handsome, and var. *Sibthorpii*, which answers to the old var. *rubra*. It is increased from seed or division of the roots.

The species, varieties, and hybrid Primulas enumerated in the pages of this Journal, commencing page 269, vol. ix. of the third series, comprise as nearly as possible all those in cultivation at the present time. Unfortunately, the series is not so complete as it might be, owing partly to want of material, as well as the material at hand not always being thoroughly reliable. No two hybrids are said to be alike in all respects, and this is borne out more strikingly in the case of Primulas than in any other genus with which I am acquainted; and, like the *Narcissi* previous to the Conference two years ago, no two growers have the same forms under exactly the same names. This state of affairs will no doubt be largely remedied at the Conference, where a comparison of plants with reliable figures and drawings will help to show the advantages to be derived from meetings of

this kind. Primulas, though not generally fastidious plants, require much attention to do them well, and in gardens where suitable, will need special provision in the shape of a rockery or prepared raised bed. It will be found more satisfactory to divide them into three groups—1, Semi-aquatic, those that grow best in damp shady places; for example, *P. rosea*, which in its native habitat is said to be found with its roots always some distance in water. 2, Those that do well in the ordinary mixed border; such as *japonica*, which does not only stand the winters, however severe, but seeds freely: *cortusoides* and others to be enumerated may also be grown in this way. 3, Failing a suitable rockery, those that can only be grown satisfactory in pots, such as *Allionii*, *biflora*, and many other small kinds. In the first or semi-aquatic group, *rosea*, which was described at page 275 of vol. x., together with its variety *grandiflora* (sent out first, we believe, by Max Leichtlin, Baden-Baden), *P. involucrata* and *Munroi*, *P. Parryi*, &c. are amongst the best that may be treated in the dampest part of the bed; while on raised mounds, *farinosa*, *scotica*, *Warei*, *sibirica*, *sikkimensis*, and most of the other Himalayan Primroses may be grown. In sheltered and shady nooks, which need not be particularly damp, *capitata*, *denticulata*, *Stuartii*, *obtusifolia*, and others will do well. In the ordinary border the second group, comprising the *Polyanthus* and, indeed, all the *Primulastrum* section, together with the Alpine Auriculas *Palinuri*, *Peyritshii*, *japonica*, *cortusoides* and its varieties, many of the *viscosa* forms, and on little raised mounds *integrifolia*, *marginata*, &c., will be found to do well and flower almost as profusely as if grown on rockeries. Some of the varieties are far superior garden plants to the types. In the third group, as above stated, unless a special rockery be available, it will be much better to grow them in pots, plunging them in the open ground in sand, or, as is often adopted on the Continent, simply standing the pots on sand beds, attending well to watering, and only covering the plants with lights in case of heavy rains or frosts during the winter season. With the latter method of growing them in pots they are always under control, and individual plants may receive different treatment without disturbing the roots, which most of the smaller species quickly resent. Under this group may be included *minima*, *biflora*, *Berninae*, *Allionii*, *tyrolensis*, *Flörkeana*; while *floribunda*, *Boveana*, *obconica*, &c., do much better with greenhouse treatment—indeed, we question much if it is possible to grow them successfully in the open air, as they are destroyed during winter, not so much from cold as from damp and fogs. A full list of the species and varieties will conclude our series.—D.

#### THE LATE MR. TURNBULL, BOTHWELL CASTLE GARDENS.

THE death of Mr. Turnbull at the Garden House, Bothwell Castle, on the 18th inst., has removed a well known figure from the horticultural world of Scotland. Mr. Turnbull was born at Leger Wood, Berwickshire, January 18th, 1804, and served his apprenticeship at the Haining, near Selkirk. In the year 1821 he removed to the Duke of Buccleuch's gardens at Dalkeith, then under the able management of Mr. McDonald, who soon discovered that in young Andrew Turnbull he had an assistant of rare value. He soon promoted him to be foreman in the plant department, and in due course to be general foreman, and the writer of this obituary notice had it from Mr. McDonald's own lips, that of the hundreds of such men that had passed under his charge, he never had a better than Andrew Turnbull. His expression was, "Whatever you placed under Andrew's charge was sure to be well attended to." When Lord Archibald Douglas succeeded his father in the Douglas estates, he applied to Mr. McDonald for a gardener for Bothwell Castle, and he recommended young Turnbull, who entered on his duties in 1828, and no man ever more faithfully discharged them than he did, gaining the high esteem and friendship of six successive employers, including the present Earl of Home. All these noblemen and noble ladies, including the present Earl, were exceptionally kind to everyone employed on their estate, and Mr. Turnbull, while exacting justice for the employer, was an excellent exponent of the latter's kind feeling for the employed, thus retaining the respect and esteem of both.

When Mr. Turnbull entered on his duties at Bothwell Castle it was then the leading garden in the west of Scotland; there were then few great gardens as we know them now. Bothwell Castle was, and is now more than ever, surrounded by mining and manufactures, and its noble proprietors in consequence did not add to the glass structures, as in other circumstances they would have done, the result being that in that respect it fell behind many gardens of the present day; but for a well managed kitchen garden, for its collection of hardy herbaceous plants, and for its Heaths, it had few equals. It is generally known that Mr. Turnbull raised more fine seedling Heaths than any man, and that of these plants he was a most successful cultivator.

When Mr. Turnbull began his career at Bothwell Castle he first directed his attention to improving the herbaceous *Calceolaria* with eminent success. His Lord Douglas, a splendid large purple flower now lost, has never had an



equal of its colour. When the writer had the good fortune to enter under Mr. Turnbull in 1832 he was just beginning to raise seedling Heaths, and he has continued to do this up to a very recent date. When I heard from him a few weeks ago, he remarked that he had taken advantage of the bad weather to get most of his Heaths shifted and staked. I replied a week ago sending him some blooms of a new Orchid he was anxious to see, but never heard from him again, thus closing a correspondence that for forty-nine years has been uninterrupted.

Mr. Turnbull was one of the first cultivators of Orchids in Britain, and though his facilities were small he grew some remarkable specimens, one of which is at this moment the finest probably in Europe—I refer to his grand plant of the autumn-flowering *Cattleya labiata*, which for forty years has produced from eight to twelve spikes of bloom annually.

For a number of years Mr. Turnbull has had the charge of the whole grounds, including the farm at Bothwell Castle, which he has managed with that upright honest fidelity to his employer that was a striking characteristic of his nature. If he abhorred anything it was double dealing of any description. His was a soul of transparent honesty. Mr. Turnbull was never married, a most excellent sister kept his house till her death some twelve years ago. He had saved a little money, which he lost in the City of Glasgow Bank when it failed. The writer went to see him on that sad occasion, and found him as brisk and cheery as ever, and as ready with a joke. No man had a keener appreciation of a well-told amusing story, or could laugh more heartily at one. His word was his bond in all things, and take him all-in-all he has left few his equals. His remains are interred in Bothwell Churchyard beside those of his sister and brother.—W. T.

## PLANT, SHRUBBERY, AND WOODLAND BORDERS.

ADJACENT to most gardens are semi-wild places—a rank mass of struggling, entangled vegetation. Shrubs smothered with trees allowed to grow and remain much too close for even their own development, the commonest and coarser having obtained the mastery. Most places of this kind exhibit unmistakeable evidence of timely thinning and judicious attention to pruning having been neglected; but “it is never too late to mend,” only it is commenced very often when many of the choicer trees and shrubs are irretrievably spoiled. Much, however, may be done by a judicious thinning to let in light and afford headway to the shrubs, and some of the latter cleared off along with the rubbish to make room for plants that grow in such situations naturally, and look better than under the restraints of cultivation. Most of our shrubbery borders and woodlands would be the better for a weeding alike of tree, shrub, and bush, as well as of the coarser vegetation. Rubbish cleared away would soon make space for many plants which, not perhaps appropriate in dressed grounds, are quite at home in woodland glades and nooks and corners of shrubland walks, but even clearances of this kind must be done with judgment, as the plants to be introduced must have shelter. Regard will also have to be had to the soil and location, which is all the better, as we get variety in proportion to the change of soil or its location in respect of sun and shade, or presence of moisture in sloping banks or hollows or well-drained knolls that afford scope for the accommodating of various plants.

Of plants that have a peculiar appropriateness are Primroses. No wood or shady spot is complete without them, and as we can have them in varied shades of colour the ground may be set all ablaze with their charm and beauty. The Primrose delights in yellow loam inclined to be heavy and moist rather than dry and light, and with shade of deciduous trees not forming too dense a canopy in summer as to obliterate the growth of grass or weeds, and not utterly deprive it of moisture, they hold their own, flourishing vigorously and blooming profusely. Polyanthus show off well in association with Primroses, and grow and thrive equally well or better. In nature they grow freely enough and spread rapidly by self-sown seed, their seeds germinating most readily immediately they are ripe and gathered when the capsules are bursting; but time may be taken by the forelock to procure some seed and sow at once, and whilst about it, it is just as well to get some Alpine *Auricula* seed and sow it, as these harmonise well with Primroses and Polyanthus. The seed may be sown on a north border, and preferably in a cold frame in fine soil, as the frame insures uniformity of moisture, and shade can readily be given, which if closed are certain to bring the seedlings quickly. When large enough to handle harden them and prick them off about 3 inches apart on the north border, and in spells of dry weather water will not be lost upon them, weeds being removed, as the stronger the plants are the finer they are likely to flower the spring following.

Then there are Violets, which everybody likes, and though they come freely enough from seed it is a method not much resorted to, though it may be practised by sowing the seed in a similar manner to Primroses, and treating the seedlings in a like manner, only the plants will need more room, as they develop more foliage than the slower-growing seedling Primroses. Those who have beds of Violets will have no difficulty in getting the plants, only leave the beds that

would under ordinary conditions be broken up alone until autumn when they will have rooted runners in abundance, that may be taken up, divided, and planted without needing any attention afterwards. Everybody seems to give themselves as much trouble as possible with Violets, planting them in spring in rich soil and open spots to cause as much trouble in watering and in getting as luxuriant a crop of leaves as possible, without any idea of this being just the way not to get flowers. Plant Violets wild in autumn, and they will have Nature's moistening through the winter in quantity, sufficient to insure their establishment. Violets with blooms like Pansies are inappropriate in the shrubbery and woodland; besides, they do not get large there. The sorts at home there are the Russian, Crimean, London, and I do not know how many other names it passes under, but is certainly *Viola odorata suavis*, with variation due to soil and location. The single pink variety (*Viola odoratissima rubra*) is another that does well; and then there is the common Sweet Violet, with its grey and white forms that are not infrequent in gardens under other names than the right one, and Lee's *argenteaeflora* is in its right place there if anywhere. It grows so freely and flowers so profusely as to fill the air with perfume. Lee's *odoratissima* also does well, and has a fitting companion in White Czar.

*Myosotis* or Forget-me-nots are great favourites, especially the lovely *M. dissitiflora*, its pinky blue flowers always attracting admiration. It likes moist places, and does well in partial shade, but cannot bear stagnant water, thriving best where the soil is kept moist by water percolating through it, and near running water. It does best in sheltered positions, as cold cutting north-easters and spring frosts mar its beauty unless so located as to be tempered before reaching the *Myosotis*. *M. sylvestris* will, of course, succeed in denser gloom, but it is best seen only in partial shade. Seed sown now will give fine plants for putting out in autumn, and once established they produce seed freely.

Columbines, of which there is now combinations to please all tastes, from lavender through blue to mauve, rose-pink to scarlet, yellow to orange; even those that like no colour at all have it in white, and the flower lover has the most striking and effective contrasts in the same flower. Douglas's hybrids are beautiful, and the old sorts with the fresh blood in them are simply captivating. Seed sown now will give fine plants for putting out in autumn. They soon get naturalised by self-sown seeds, and make charming groups. They like good soil and not dense shade, but there is plenty of bare spots that will suit them.

*Mimulus* are fine for moist places. The spotted, though usually seen in greenhouses, are hardy where they get Nature's leafy mulching, *M. cardinalis* and *M. cupreus* making quite a display. The indispensable Musk never comes amiss, especially as a surprise in woods. These may be raised in cold frames, pricked outdoors on a shady border, and put out in autumn.—G. ABBEY.

(To be continued.)

## CINERARIAS AND THEIR CULTURE.

(Continued from page 299.)

### POTTING THE PLANTS.

ONE of the most important points to be observed in the culture of Cinerarias is to always pot them before they experience the slightest check till they are placed in their largest pots, for if once they become stunted they never grow freely afterwards. We always like to give them small shifts, as there is less chance of the soil getting sour before the roots have permeated it. From the 60-pots ours are shifted into 5-inch pots, then into 7-inch pots, and as soon as ready transferred to their largest pots (9 or 10 inches in diameter), which we find large enough for all purposes. It will therefore readily be seen it is useless to state the week or month in which they should be potted into a certain sized pot; that will depend upon the progress they make. Let the cultivator be guided by the state of the plants. If on turning them out of the pots numbers of roots are found to have reached the sides of the pots, that is just the stage at which they require shifting; and at each successive potting the soil is made a little firmer than at the last, and when the plants are placed in their largest pots it is made decidedly firm.

### THE BEST SOIL.

Good turfy loam that has been stacked in a heap for twelve months is an essential ingredient in preparing the soil; and the manure and leaf soil used should be perfectly sweet and free from all insects. A small white grub sometimes found in leaf soil works sad havoc among the roots of plants. The best manure we find for the purpose is well decayed hotbed manure. If this is exposed to the sun before using, so as to allow it to be rubbed through the half-inch sieve, it will form an excellent material for mixing with the loam. The compost used for potting in the earlier stages of growth should be rather lighter than that used at the final potting. When shifting into 5-inch pots, three parts loam, two of the leaf soil, and one part manure, with a good sprinkling of charcoal broken very small, some road sand, and a little soot will form a very suitable compost, gradually increasing the proportion of loam till the final potting, when three parts loam, one of manure, and one part leaf soil



with the other ingredients as before, should form the mixture. The whole of the soil is passed through the half-inch sieve for the 5-inch pots, after that only the manure and leaf soil is sifted.

#### SUMMER TREATMENT.

About the beginning of June the plants should be transferred from the Melon pit to a cold pit or frame, where they can be kept close to the glass. If a stage of boards was to be erected for that purpose place a layer of coal ashes on the boards before setting the plants thereon, as the ashes will retain the moisture from the syringing and watering, and consequently keep the atmosphere about the plants in a humid state, so necessary to insure perfect health. Throughout the summer months the best aspect for the frame in which they are grown is due north, but failing that the foot of a west wall will do, only then the plants will require more shade. When the former aspect can be obtained they will require but little shade, none being given when the sun is high and strikes directly on the plants, and it should be removed early in the afternoon, according to the weather. On bright days the plants should be slightly syringed between four and five in the afternoon, and about half an inch of ventilation left on the back of the frame, or more if the weather is still bright and warm. I was once very much puzzled to know why so many plants under my charge went off in a way peculiar to *Cinerarias* during the summer months; the more so because I knew they were not over-watered, neither were the plants potted deeply, and on turning them out of the pots the roots appeared quite healthy, although the plants were drooping beyond recovery. On examination I found in every case they succumbed at the collar, and when the stem was broken at that point it was found black in the centre. After much consideration I thought it must be caused by closing the frame at syringing time, as I had been in the habit of doing up till that time to push the plants on, being opened again in the evening. I then regularly left air on, as described above, at syringing time, and since then have had no trouble with the plants. During the fine dewy nights of July and August the lights should be taken off and replaced early the next morning. This helps greatly to keep the plants vigorous and sturdy. At the beginning of September they should be transferred to a pit facing the south, and should the weather be bright they will require shading with some light material for a time; but all shading should now be gradually dispensed with till the plants are able to bear full sunshine without flagging to any great extent, and in order to assist them to do that damp between the plants with a syringe morning and afternoon whenever the weather is very bright. Abundance of air should now be given on all favourable occasions, but avoid the cutting winds which are often prevalent at this season of the year.

#### TREATMENT FROM OCTOBER TILL APRIL.

There can be but little doubt that the best structures for wintering the plants in are span-roofed houses or pits furnished with hot-water pipes, which would only require to be heated sufficiently to keep out the frost and expel damp. But it is not everyone that is so fortunate as to be able to devote such structures to *Cinerarias*. It is, therefore, convenient to know they may be kept fairly well in well-built pits, but great attention is necessary to keep the damp and frost from injuring them. To guard against the former give the plants plenty of room for the air to circulate freely among them; be very careful not to give too much water at the roots, and ventilate on all possible occasions consistent with their well being in other respects. To keep out frost plenty of covering material must be placed over every part of the pit in severe weather, with mats and shutters over the lights, and a good covering of fern around the sides and on the shutters the plants will be safe from 20° or 30° of frost. About the end of December when the late Grapes have been cut and the houses cleaned these structures make capital quarters for them while they are kept cool, and as they come into flower can be removed to the greenhouse or conservatory. During the flowering period, if placed in large houses with plate glass roofs, they will require no shade, but when kept in houses with ordinary glass roofs, especially if the houses are small, a light shading will be necessary during very bright weather to prolong their season of beauty, as the weather we often experience in March is very bright and trying and disresses the plants a great deal if they are not shaded. We are seldom troubled with green fly till the plants flower, and on the first appearance of the insect the house is fumigated lightly on two successive nights and repeated again when required.

#### WATERING.

Any remarks upon the culture of the *Cineraria* would be singularly incomplete if they did not contain a few hints concerning this important operation, which is one of the greatest factors in bringing success or failure. Throughout the whole of their existence they require the exercise of great care and judgment in watering. There are times when the plants are liable to be permanently injured by having too little water, and at other times one dose too much would be fatal. When grown in the positions and given the treatment indicated above comparatively little water is required during the summer months, for the obvious reason that if the plants are shifted as soon as the roots reach the sides of the pots they are continually having fresh food supplied before the bulk of the soil is permeated by a network of active roots, and consequently do not absorb the moisture from the soil very quickly; they should, therefore, not have water given until the pots give a sharp sound when rapped and then be watered thoroughly. If kept in pits during the dull days of autumn very little water will be required, but as the days gradually lengthen the sun becomes more powerful and the soil in the pots is filled with roots, supplies will be required much more frequently, and neglect in this matter is

sure to tell the tale, though not always at the time. I have known plants completely collapse at this stage, which to the casual observer appeared to be suffering from the effects of too much water, the soil being very sodden when the plant first showed signs of distress, but which was really brought about in the first place by their once getting thoroughly dry. Many of the young fleshy roots then died. The plant was watered two or three times over with the result that the soil was completely saturated, and as many of the roots were already dead, and those left not in the best condition to perform their proper functions, so that instead of the moisture being drawn out quickly, as would be the case if the roots were active and healthy, remained saturated for a long time, and causes the plant to go off at the collar. When this occurs, if the stem is cut through, it will always be found black in the centre just above the soil. We give no liquid manure water till after the final potting; and when roots are plentiful then it is given at each alternate watering for a time afterwards every time the plants are watered till they come into flower, then it is discontinued and clear water given. Drainings from the manure heap, or that made from cowdung, are both excellent, but should be used in a greatly diluted state; and if soft water is given once a week the beneficial effects will soon be apparent by the rich green colour of the leaves.—H. DUNKIN, *Longford Castle Gardens*.

P.S.—A printer's error occurred in my article last week. The sentence should read, "Take great care not to bury (not wring) the collars of the young plants."—H. D.

#### EUPHORBIA JACQUINIÆFLORA.

At this season of the year this lovely stove plant may be readily propagated. This *Euphorbia* is reputedly a short-lived plant, which I consider due in a great measure to overwatering it at the roots and to general injudicious management, especially when planted out. It makes but few roots and requires but little room, and is always safest when the soil is kept rather dry. A stove temperature is required at all times, and a mixture of equal parts of peat and loam, with abundance of sand or very sandy peat; liquid manure or manures of any description I seldom use in its cultivation, and I have been successful in propagating and growing it.

To produce it in quantity I select a dozen plants which have been flowering during the winter in 48-sized pots; and turning them out of pots plant them thickly at one end of the stove where there is a temperature of from 65° to 75° maintained. Here they soon begin to push forth new growths from the uppermost parts of the old wood; these are the best for propagating purposes, securing them when about 3 inches long. To insure success with the cuttings they must be detached with a heel from the old plant, without this the cuttings and labour are lost. Prior to taking the cuttings the pots should be in readiness to receive them, and not more should be severed from the old plant at any one time than may be inserted and covered before they droop, which they do in a comparatively short time, consequent upon the milky sap which exudes from the base of the cuttings. This bleeding may be reduced to a minimum if the cuttings as soon as detached are thrust into some very dry silver sand. I lay considerable stress on keeping the cuttings quite fresh and plump and not allowing them to suffer in the smallest degree, and indeed it is to this I attribute my success, since experience has clearly shown that those cuttings which have once been allowed to droop do not readily recover.

Insert the cuttings in sandy peat, surfaced with about half an inch of dry silver sand, which will follow the dibble into the hole, and allow the cutting to rest upon it. Plunge the pots in a bottom heat of 75° to 85°, and cover tightly with a bellglass. I employ 48-sized pots for the cuttings on account of the difficulty experienced in getting bellglasses to fit certain pots, and by plunging these in 7-inch pots with cocoanut fibre, and placing the glasses on, they are rendered comparatively airtight. Give a thorough watering at the time of inserting the cuttings, and take care that the sun does not reach them. In this bottom heat they will emit roots in two or three weeks, when they may be removed from the pots in which they were plunged, and the glasses removed also, placing them for a few days in a shaded part of the house. At this stage it should be decided for what purpose they are destined. If required for the production of lengthened racemes of flowers they must not be stopped at all, but grown on liberally and kept near the glass; if smaller racemes are likely to be more in demand they may be stopped once or twice, removing only the tip of the shoot, and thus secure as many breaks as possible on the stem. This, perhaps, is best done when the plants are potted singly and have made fresh roots.

In potting press the soil firmly about them, and remember that a free drainage is essential. There is really no particular time of the year to propagate this lovely stove Spurge, for it will root any time from January to midsummer, or longer if cuttings are obtainable. The advantage of continuing their propagation to a late date is that various sizes of plants which may be used in a variety of ways may be obtained. The latest batch will do capitally for 5-inch pots, disposing them among foliage and other flowering plants in the warm conservatory or stove; the earlier batches should have more room, receiving their final shift about the middle or end of August into 6-inch pots, using equal parts of peat and loam, with plenty of sharp grit, and pot firmly.

During the winter months it is surprising what a quantity of its brilliant flowers it will yield, either in small compact bits so charmingly adapted for buttonhole flowers, or in long wreath-like arching racemes, which are so much valued for vases, for table decoration, or for ladies' head dress. When used thus it is one of those exceptional floral charms that furnishes foliage with flower, and needs nothing beyond its own leaves



to render it presentable. It is remarkable that this species is almost unique in point of usefulness and colour, *E. splendens* being the only near approach, and that not to be compared with the first-named. There are many other species included in the genus, several of which are true herbaceous perennials, as *E. pilosa* and *E. characias*, while *E. myrsinites* is alpine in character and of prostrate habit.—J. H. E.

### ROSE SHOW FIXTURES, 1886.

For the guidance of those Societies which have not as yet fixed the dates of their exhibitions I append the following list of Rose Shows arranged to be held during the coming season by the National Rose Society and Societies affiliated with it.

Bagshot and Windlesham Rose Society, at Bagshot, Tuesday, June 29th.

Diss Horticultural Society, at Diss, Tuesday, June 29th.

Croydon Horticultural Society, at Croydon, Wednesday, June 30th.

Farningham Rose and Horticultural Society, at Farningham, Wednesday, June 30th.

Canterbury and Kent Rose Society, at Canterbury, Thursday, July 1st.

Reigate Rose Association, at Reigate, Thursday, July 1st.

Tunbridge Wells Horticultural Society, at Tunbridge Wells, Friday, July 2nd.

Eltham Rose and Horticultural Society, at Eltham, Saturday, July 3rd.

National Rose Society, at South Kensington, Tuesday, July 6th.

Cardiff Rose Society, at Cardiff, Wednesday, July 7th.

Ealing, Acton, and Hanwell Horticultural Society, at Ealing, Wednesday, July 7th.

Sutton Amateur Rose Society, at Sutton, Wednesday, July 7th.

Bath Floral Fête and Band Committee, at Bath, Thursday, July 8th.

Hereford and West of England Rose Society, at Hereford, Thursday, July 8th.

Crystal Palace Rose Show, Saturday, July 3rd.

—EDWD. MAWLEY, *Rosebank, Berkhamstead.*



### HARDY FRUIT GARDEN.

Now is the critical time when blossom and foliage, especially of Peaches and Nectarines, must have our best care to protect it from cold. One of the best screens for wall trees we have seen this spring was a pair of curtains of thin sacking material, with brass rings running along an iron rod fastened to wooden blocks let into the top of the wall. Each curtain covered a little more space than half the tree, so that when drawn they overlapped, and they were then tied at the bottom to a wooden bar, to prevent them from being blown against the blossom. This was in the garden of an amateur who has only three Peach trees, which, owing to careful protection and skilful culture, never fail to afford full crops of fine fruit. Do not forget that the young foliage of Peaches and Nectarines suffers as much or more than the blossom from exposure to cold, cutting north-east winds, and if you allow the foliage to become seriously blistered, the growth is checked, the leaves fall prematurely, and it is impossible then that there can be a full healthy development of branch growth till midsummer. We cannot have fine fruit from weak immature wood growth, and when we protect the blossom we not only save the fruit crop of the current year, but we also do something for the crop of another season. The development of a crop of fruit is not the work of a season—of spring and summer—but of the whole year, and care or negligence, even in winter, and still more so in spring, leave an impress upon the trees which is visible the year round. If a gardener has proper means at his disposal for the culture of the trees under his care, he ought not to have any sickly or weak growth among his Peaches and Nectarines. We may go further, and declare positively that, under ordinary circumstances, he ought always to have a supply of Peaches from about the end of July till about the end of September.

This sweeping assertion is not made lightly, and is really the teaching of mature experience. Only a day or two before writing this note we saw a considerable number of Peaches and Nectarines in a large garden, to which protection had been given for the sake of the scanty blossom borne on a thin attenuated branch growth quite pitiful to behold. There clearly before our eyes was the impress of negligence or ignorance, for the whole of the trees should have been headed back near to the base of all the main branches in winter, no really robust fruiting wood being visible upon any of them. The necessity for such drastic treatment is an outcome of mismanagement; all Peach and Nectarine trees show signs of exhaustion sooner or later; the tissue of the branches hardens, the sap action becomes slower and slower, the annual branch growth shows a falling off in vigour. Head back such trees, renovate the soil, and you have growth of such extraordinary vigour that in a couple of years the wall space allotted to the tree is again clothed with healthy, vigorous, fruitful wood. This heading back is, under good management, so done that there is no serious deficiency in the annual supply of fruit, timely attention to the requirements of the trees enabling one to take one

or more trees year by year, for what may be termed hard pruning. We must take a high standard of excellence in our practice, and never rest satisfied with anything short of it.

The fruiting wood of a healthy Peach tree in full vigour is the size of an ordinary lead-pencil, and well set with triple buds. When there is a falling off in the size of the fruiting wood, fruit buds are frequently even more numerous, but they come singly, and there are often very few wood buds. This hint from exhausted nature is plain and unmistakable, and there must be no hesitation in acting upon it with promptitude and energy.

Repeatedly have we called attention to the great value of intersecting hedges in fruit gardens as a means of shelter at this season of the year. To plant trees with full exposure to the north-east is to court failure, and yet it is an easy matter to plant sheltering hedges among the trees and thick hells around them. Now is the time to gain valuable knowledge about this matter, cause and effect being before our eyes like an open page. The quick-growing *Thuja Lobbi* is the best tree we have tried for hedges, the dense growth being admirably adapted for breaking the force of the wind, and it grows so fast that we may soon have hedges from 10 to 20 feet in height, while it may be clipped into a close compact mass.

### FRUIT FORCING.

**PEACHES AND NECTARINES.—Early Houses.**—The trees from which ripe fruit will be gathered about the end of May and through June will now require the final thinning of fruit and wood, and when this has been completed the young shoots which have been allowed unrestricted growth during the stoning period (about six weeks) should be neatly tied to the trellis, and the points or apex of the fruit be elevated by means of these latter fixed across the wires of the trellis. Quality being always preferable to quantity, healthy trees well furnished with active roots in inside borders may be allowed to carry one fruit to each square foot of trellis covered with foliage, whilst Nectarines may be left a little thicker; but nothing is gained by leaving a great quantity, which accounts for this fruit often being small, badly coloured, and poor in flavour, as the formation of the stones weakens the trees, and the fruit in consequence when ripe is small and worthless. It also permanently injures the trees. Shoots which emanate from the bearing wood of the current year should be allowed to grow evenly over the trees without being stopped, as they will become the fruit-bearers next season; remove other shoots left between them and the terminals. Do not stop terminals until they reach the extremity of the trellis; but shoots that will be removed after the fruit is gathered will only require moderate extension, being pinched when the last swelling for ripening commences. Ample supplies of liquid manure at a temperature of about 75° will be required by the roots, the great strain of the crop and the extensive breadth of foliage exposed to the sun will enable the trees in properly drained borders to take large quantities of water. Premature ripening may most frequently be traced to an insufficient supply of water to the roots through the last stages. When the fruit is advancing for the last swelling, the temperature by day may be considerably increased, provided the trees can be allowed to rest by night, when a rather free circulation of air will add greatly to the colour and flavour of the fruit. Syringe twice a day with clear soft water, as water containing lime disfigures the fruit, and endeavour to have the foliage quite free from red spider as the ripening stage approaches.

**Succession Houses.**—Follow up disbudding until every shoot that is left will have full space for development and exposure to the solidifying influence of light and air. It is no use trying to hasten the stoning process, as the fruit must have time, an equable temperature, and generous treatment. Disbud the trees in late houses, and thin all small and badly placed fruits, leaving a fair per-centage for choosing from when the most promising take the lead. Syringe copiously when the weather is fine, and ventilate by night as well as day when it is desirable to have the fruit as late as possible.

**FIGS.—Early Forced Trees in Pots.**—The fruit will soon be ripening, and on this account the supply of moisture will have to be reduced while ventilation may be increased. Much judgment and great care will have to be exercised in the management, as the trees laden with fruit in every stage of growth the daily routine must meet the wants of the trees in respect of the succession as well as the ripening crop. The trees, being surrounded with turves and a mass of roots, will require plentiful supplies of warm water. The surface of the plunging material and the lower part of the trees will need regular syringing, and as the fruit is gathered, it being well to do it closely, the trees may be well washed overhead. This occasional washing assists in restoring the wasted energies of the trees, keeps them free of red spider, and keeps the successional crop steadily advancing. Fire heat is necessary to maintain a temperature 60° to 65°, and 70° to 75° by day, with a rise of 10° to 15° from sun heat. Any strong lateral growths that require stopping and tying must be attended to, as good Figs cannot be obtained without a free circulation of warm air and exposure of the fruit to sun and light.

**Succession Houses.**—The weather has been more favourable of late, and under those conditions succession crops have made satisfactory progress. If not already stopped and tied down no time should be lost in getting this done, as the fruit will soon begin to show signs of swelling for ripening, and if, as is often the case in succession houses, the trees have a very heavy crop, a general thinning should be made as the work proceeds. It is a great mistake to suppose that a fruit tree, particularly a Fig, is more likely to mature a crop by being oppressed with a load that is enough for two, and it certainly results in complete loss of quality, and very often of the entire crop of fruit. The general routine will consist of



good root-feeding with tepid liquid manure, or clear water through a heavy mulching, plenty of heat, air, and a good syringing twice a day. The best time to perform the first syringing is when the temperature is beginning to rise, and the second in the afternoon after closing with a temperature of 80°, and sufficient sun heat that will raise it to 85° or 90°.

*Trees in Pots for Next Year's Forcing.*—Have these well advanced in order that they may have time to make a good thoroughly solidified growth, and a long and complete rest before they are wanted forced. By constant stopping and feeding young plants may be kept growing for a considerable time, and they soon make large trees; but size of tree is had at the expense of fruitfulness, hence a small tree with stout, short-jointed wood thoroughly ripened and rested, is more prolific and profitable.

**PINES.**—Up to almost the present time the deficiency of solar assistance in forcing operations this season stands almost unparalleled, hence recourse to hard firing has been continuous in order to keep up the heat in the various compartments. After such a period it will be necessary to be attentive to details of management, especially to the ventilation and the means which are employed for resisting the powerful effects of sunshine. Admit air slightly at the apex of the house early in the morning whenever there is an indication of a sunny day, and give a little protection from sunshine early to those plants which are placed at no great distance from the glass. Recently potted plants—suckers and others in small pots—must have immediate attention when they have filled the pots moderately full of roots; for this purpose the pots, soil, &c., which will be required for shifting the plants, should be ready to hand, and in a warm moderately dry condition when used for potting. Let the soil be lumpy, and the plants firmly embedded in it. Good yellow loam full of fibre and not too porous cannot be excelled for Pine cultivation, and in the case of the loam being very tenacious an addition of road scrapings will be highly beneficial. When the plants have been shifted into larger pots the bottom heat should be well sustained at 90° to 95°.

#### PLANT HOUSES.

*Tydas.*—As evergreen varieties, such as Madame Heine and others that form no underground stems, cease flowering, all healthy cuttings should be taken from them and inserted in sandy soil in pots and pans. Generally sufficient cuttings can be obtained for next year's stock, and when this can be done the old plants can be thrown away. Every cutting will be certain to root if placed under a handlight and shaded from the sun in some structure. After the cuttings are rooted they should be grown under moderately warm conditions, and by the time it is necessary to strike them for spring flowering some strong cuttings will be produced. If sufficient stock for next season cannot now be obtained, a few of the old plants may be cut down to within 6 inches of the base, and if kept in heat cuttings will soon be produced.

*Justicia calytricha.*—This is one of the most beautiful plants that can be grown for the decoration of the conservatory or intermediate structures from December until the end of March. The beautiful light feathery plumes of this plant last a long time, and after the first flowers fade a second crop is produced. This plant must be grown on from cuttings annually, for old plants seldom grow with such vigour or produce such large plumes of flowers as young plants. Old plants from their slow stunted growth often become a prey to scale, which is not the case where plants are raised from cuttings every year, provided they are not grown too warm. Old plants that have flowered should be pushed into growth in a warm house, for the sooner cuttings can be obtained the better. When strong cutting have been produced they should be inserted singly in small pots, and if kept close in the propagating frame every one will root. They should be grown warm until they are established in 8-inch pots, and from this stage an intermediate temperature should be given them. After the middle of July they should be grown in cold frames.

*Begonias.*—*B. manicata* and *B. hydrocotylifolia*, that were brought into flower by the aid of stove heat, and have since been in the conservatory, are now past their best. The last named is decidedly the best for conservatory decoration, the flowers not only last longer but are larger and more showy than those of the former. These plants must be raised from cuttings annually. The cuttings should be 3 inches in length, and remove the large leaves before they are inserted in 3-inch pots. Insert them at the side of the pots, or when full grown they generally creep over the edge of the pot. If placed at the side and the same treatment is given when placed in their largest pots, the head of the plant will be near the centre by the time they are fully grown. These root freely in any structure where they can be shaded from the sun and a temperature of 60° maintained. Insert the cuttings in a compost of loam, one-fourth leaf mould, and about one-seventh of manure and a little sand. A good pinch of sand should be placed in the centre for the base of the cutting to rest upon.

*Linum trigynum.*—If cuttings of these have been rooted place them into 2½-inch pots and grow them warm until they are established. When in this stage gradually prepare them for an intermediate temperature, in which they will make a sturdy growth and resist the attacks of red spider if carefully watered and liberally syringed. This insect is a great enemy to this plant, and is certain to prey upon it if the plants are grown under stove treatment. Cuttings may still be rooted if sufficient stock has not been obtained.

#### THE FLOWER GARDEN AND PLEASURE GROUND.

*Shrubby Calceolarias.*—These having been duly stopped, will now be breaking strongly, and unless well hardened off and transplanted to

fresh and more roomy quarters will quickly spoil. If the flower beds are empty there is no reason why they should not at once be finally planted out. They delight in a fairly rich soil, and should be lightly protected when necessary with branches of evergreens. In most cases it will be advisable to bed them out in frames or rough pits preparatory to finally transplanting, this being altogether preferable to potting or boxing them off. We put out several hundred in a rough pit, protecting with mats only. The bottom is hard and faced over with ashes, on this being placed a well-trodden layer of leaf soil, short manure, and common soil, to a depth of 4 inches, finishing off with about 2 inches of fine light soil. The plants are firmly planted in this at about 6 inches apart each way, watered, shaded for a few days, and subsequently kept supplied with water as required. At bedding-out time each plant can be moved with a good square of soil and roots, this coming clean away from the ashes, the removal being unattended by a severe check, and very few are lost. Failing a frame or pit, a wide trench might be formed in the garden and prepared as just recommended, and in these the plants may easily be protected by laying branches of evergreens, mats, or other protecting material across.

*Violas.*—Young plants of these that were wintered in frames now require attention. They cannot well be established too early in the beds where they are to bloom, and should have very liberal treatment. A good dressing of any kind of short manure or leaf soil ought to be well forked in, not so much to stimulate strong growth as to preserve plenty of moisture about the roots. A summer mulching should also be given, and then the Viola beds will be among the gayest, no matter how hot the summer may be. The blue varieties are most effective in mixture with either silver, golden, and bronze Zonal Pelargoniums, spaces being left for the latter when the Violas are put out, a broad band of *Iresine Herbstei* or *I. Lindeni* with a margin of silver or golden variegated edging plant completing an attractive bed. If the beds are occupied with spring-flowering plants the Violas must be bedded-out temporarily, or somewhat similarly to the Calceolarias, and all flowers should be kept picked off all of them. Now is the time to divide the old plants, as if this is delayed to June they seldom make satisfactory progress. The frames now cleared of Calceolarias and Violas should next be filled with seedling Pentstemons, Antirrhinums, Lobelias, Ageratums, or other kinds for which more room is required, this liberating boxes and pans for other purposes.

*Seeds to be Sown.*—If not already done no time should be lost in sowing in a mild heat such useful annuals as Stocks, including Ten Week, East Lothian, and Earliest-flowering Autumn; Asters in variety, Marigolds of sorts, including, if a substitute for Calceolarias is required, either the Miniature Yellow or *Tagetes signata pumila*, Everlastings, *Perilla nankinensis*, Zinnias, including the dwarf and very free-blooming *Haageana imbricata flore-pleno*, *Zea japonica*, and Ricinuses. The latter are best sown singly in 5-inch pots and given a light position directly they are up, while the Maize we sow singly in 2½-inch pots, and plant out before they are root-bound. All the foregoing germinate quickly, and when sown rather late may be kept growing without a check. In the open border we are now sowing seeds of Mignonette in quantity, planting other annuals among the plants later on; Sweet Peas, Calliopsis in variety, Candytuft, annual Chrysanthemums, Clarkias, *Clintonia pulchella*, *Convolvulus*, *Centaurea cyanus* (Cornflower), *Collinsias*, *Eschscholtzias*, *Godetias*, *Helichrysums*, *Hibiscus africanus*, *Larkspurs*, *Lupines*, *Malope*, *Love-lies-bleeding*, *Nasturtiums*, *Poppies*, *Salpiglossis*, *Tropæolums*, *Sunflowers*, *Virginia Stocks*, *Senecio elegans*, and *Portulacca*. The ordinary garden soil being in the best condition imaginable, this is quite good enough for covering seeds, and they should germinate quickly this season. The seed should not be sown like Mustard and Cress, but much more thinly, as only a few plants in each patch invariably give a better and more lasting display. Sown thickly the seedlings spoil each other.

*Ornamental Grasses.*—These are very pretty in the borders, and when cut and dried before they are fully ripe they are of great service to the decorator. They are usually sold in collections as imported, each containing from six to twenty-four sorts. These may be sown at once, either in lines on a spare border, or better still in patches in a mixed border and according to their respective heights. As the packets do not bear any instructions as to the heights the various sorts attain, our own measurements may be of service to intending growers. *Agrostis elegans*, *A. namaquensis*, *A. papposa*, each 1 foot; *Briza geniculata*, *B. maxima*, each 1 foot; *B. gracilis*, three-quarters of a foot; *Anthoxanthum gracile*, three-quarters of a foot; *Coix lachryma*, 2 feet; *Gymnothrix latifolia*, 2½ feet; *Gynerium argenteum*, 9 feet; *Hordeum jubatum*, 2½ feet; *Lagurus ovatus*, 1 foot; *Lasiagrostis*, 1 foot; *Pennisetum longistylum*, 2 feet; *Stipa elegantissima*, 2 feet; *S. splendens*, 3½ feet; and *S. pennata*, 1½ feet.

## THE BEE-KEEPER.

### AN INTERESTING EXPERIMENT.

THE past winter has been in many cases more than usually disastrous to bees. Many stocks have died, some of starvation, others from the effect of damp, all from mismanagement. A little individual enterprise would have saved not a few fine colonies from an untimely end to yield profit in the coming season. Snow after snow, keen frost and chill cutting east



wind, may all be defied by a careful attention to matters of detail, and, even in apparently desperate cases, much may be done to remedy earlier neglect. The most critical time for stocks this year was in the early days of February, when a brief period of milder weather gave every bee-keeper an opportunity—not, to be sure, a very favourable one—to attend to the wants of his bees and see if there was a sufficient food supply to last until the middle of April.

Those who made use of the brief interlude between two storms of frost and snow of long duration had every reason to congratulate themselves upon their forethought. How few actually did make such an examination is proved by the sad havoc the last six weeks of frost and snow have wrought in many apiaries. This year has been so phenomenal as regards weather that the opportunity once lost was gone until the middle of March, when a sudden change to mild weather and bright sunshine enabled the bees to take a general flight. What, it may well be asked, could have been done to give a food supply to light stocks when 3 inches of snow were on the ground for many days, and 15° to 20° of frost at night? Candy at least might have been given, but syrup might equally as well have been given if sufficient care were taken to prevent the bees from flying when the weather was unfit for flight. The method attended with the greatest amount of success during the continuance of a storm, if food has to be administered, is to place an ordinary bottle feeder on the stock, wrapping it up as warmly as possible and absolutely preventing the flight of a single bee. Has anyone actually proved by experiment how long a strong stock may be confined to its hive while feeding is going on and still be found in the best of health? From the 12th of February until the 19th of March this year a very strong colony has been confined while feeding was going on and is now in excellent health, and far in advance of some other stocks apparently in better condition six weeks ago.

The means taken to produce this result were exceedingly simple, and although I hope that there may be no necessity for years to come to adopt a plan so much opposed to the general rules of bee management, it may be of use as showing what can be done to prevent loss when an earnest attempt is made. It is well known that at night bees are quiet and content to stay in the hive even in the mildest weather, and it is also reasonable to suppose that if day and night can be made to appear almost identical absolute quiet will prevail in the stock. Acting upon this idea a thick screen of old carpet was provided and wrapped closely round the hive, leaving the alighting board free from obstruction and the entrance open to its widest extent, so that no false excitement should be caused by the inability of the bees to leave the hive. This screen being put in position boards were placed outside to shut out the least ray of light and to shoot off the rain and snow, the feeder put in its place, and beyond filling the feeder no more care was bestowed upon the stock, except occasionally at evening removing the covering for an hour or so to renovate the air; but this was not a necessity, as the stock being in a hive standing on four legs 8 inches high admitted a constant current of air beneath the shade. The result was satisfactory; but little movement could be noticed, and the colony seemed almost in a normal condition through a long cold night of nearly a month's duration. There was no fouling of the comb nor of the hive, and on the first cleansing flight not a trace of dysentery could be perceived, and now at the end of April there is no stock more prosperous nor does any give promise of greater profit hereafter.

I was told by "those who knew" that any attempt to confine the bees while feeding was going on would result in failure, but have been able to prove that such is not the case. How long such a confinement would be safely endured it is difficult to tell, but possibly for a long time, and it must not be forgotten that, while the snow was on the ground, bright warm sunshine made the air as mild as summer, and necessitated very careful covering of other stocks to prevent a wholesale destruction; and even then some few bees did leave their

lives, and curiosity led me to try the extent of their vitality, for, picking a fine bee out of the snow—how long it had been there it is impossible to say—I took it into a warm vinery, and revived by the genial warmth it soon regained health and activity; about ten minutes later I again laid it in a wreath of snow, and once again it fell asleep, and so it lay for two hours and a half, when it was taken into the warm atmosphere of the vinery, where it speedily awoke and seemed not in the least the worse for its adventures, and was carefully restored to the hive from whence it came. The disappearance of the snow, and its not having since returned, prevented any further experiment, which must be postponed till next winter unless we are victimised by another storm.

In concluding, let me say that although I am not aware that the former of these experiments has been carried out and described, it may have been put to the test by others. The latter is not by any means new, it having been a fact long ascertained that bees have a surprising amount of vitality and recuperative energy, but it would be most interesting to know how long a bee would remain in this death-like sleep and yet recover upon being placed in a warm place for a brief period. There seems to be a system, and one not seldom practised, of trading in another's wares. Now this is most reprehensible and discreditable to all concerned; although in many cases it is no doubt accidental, in some I fear it is wilful. It will be well if each one will do all he can to expose any such violation of trust, and thus make those who deserve the credit of any useful invention to receive the praise due to them for their efforts to improve and simplify the appliances used in our apiaries.

Will "A Lanarkshire Bee-keeper" kindly say where the "honey-press" about which he writes can be purchased, and at what price?—FELIX.

#### APPLIANCES—FRAMES FOR HIVES.

WILL your correspondent, "Lanarkshire Bee-keeper," kindly state the price of his honey press, which he alluded to a fortnight ago in the Journal; also the cost of a wax extractor on the principle of his own? and the price of his "Essay on Bee-keeping," and if it treats the subject of queen-rearing and forming nuclei for an autumn supply of queens?

I have at present three stocks, two in standard frames, and one in frames 6 inches deep and the length of standard frames. One stock is composed of two driven stocks from straw hives, the next an old stock, and the third a swarm of last year. All my hives have perforated zinc floors with a slide underneath, and consist of hives proper in cases with lateral slides on the top. The driven stock has eight or nine standard frames fed with 30 lbs. of syrup. The old stock I transferred from standard frames into a shallow hive 6½ inches deep, and fed with 30 lbs. of sugar. The swarm retained eight or nine standard frames with honey and pollen, and fed with syrup to make its supply of food equal to the other hives. They appear to have wintered in good condition. I scarcely saw a bee from November to the middle of March. I have not yet examined them, for as the hives stand in an exposed position I am afraid to open the hives lest it chills the brood. The hives are well supplied with food, and I shall leave them alone until a fine day. They have a good supply of pollen in the Furze blossoms close by, but the wind is too strong for the bees to gather it. I am not going in for spring feeding this year. I did so last year with a stock, but it turned out very late after all my feeding. This might, however, have been the result of over-manipulation. I want to prepare them for June Clover, and to raise some queens to be held in readiness to introduce in the autumn, and I should feel thankful if your correspondent would give me a few hints how to do so with my stocks as I have explained them. Ought I to add more frames when I change them to clean hives? I want about three or four queens in reserve for autumn.—NORFOLK BEE-KEEPER.

[1, The price of an all-iron honey presser last year was 35s. complete, being 5s. dearer than those partly of wood. Every bee-keeper should have as an accompaniment a honey drainer, which costs from about 20s.

2, The price of a wax extractor 15 inches in diameter and 18 inches deep over all, including sieve, sieve holder, and steam generator, is 16s.

3, The price of the "Essay" post free is 7d., and treats briefly on raising queens. The subject will be fully treated in the columns of this Journal as the season advances.

Eight or nine standard frames to a hive are too few for either swarms or for producing surplus honey. Take the first opportunity to enlarge all the hives to double that number of frames, on the tiering principle. When bees rest peacefully during winter, which they will only do when dry and well provided with provisions, they as a rule come out well in spring, and are profitable by summer. All meddling with bees during winter or spring is injurious in some form or other, which you seem to have proved.—A LANARKSHIRE BEE-KEEPER.]



## TRANSFERRING COMBS.

I HAVE this winter been altering hives in accordance with advice given to me by your correspondent, "A Lanarkshire Bee-keeper." As I highly approved of this advice I set to work at once to follow it. I have altered three bives, or rather six, and each hive now consists of two, one placed over the other. Originally they were oblong hives, each containing thirteen combs, each comb measuring, inside measure,  $7\frac{1}{2}$  deep by 13 wide. A number of years ago my hives contained seventeen or eighteen combs, all on one level, and the consequence was that in winter the outside combs got mouldy and the wooden floors damp and dirty; but the population was very large, far larger than the smaller hives.

"A Lanarkshire Bee-keeper" advised a double-tiered hive and ventilating floor with perforated zinc bottom. I have adopted this principle. The hives now contain eighteen combs—nine below and nine above. They are about square inside, and 16 inches deep, and will retain the heat better. There are underneath each hive two drawers, like bird-cage drawers, only a little deeper; they are placed one above the other. The upper one has a floor of perforated zinc to allow *débris* from the bees to fall through, and the lower one has a wooden floor, which is covered with dry peat, as I think this will tend to keep the bees healthy and dry. The peat drawer can be drawn out and refilled at any time, without the bees being interfered with in the least.

I should be glad, now, of a little advice as to the future. I have three old pattern bives, each with a newly altered hive alongside, and I might transfer (when suitable weather comes) the thirteen frames with bees on them to the newly altered bives. I would place nine frames, containing all the brood and bee-bread, in the upper tier of the hive, while the four remaining frames would go below, filling up with foundation-filled frames. Is it desirable to do this now, while the population is small, or wait later, when there will be more bees to keep up the heat, or to wait for the young swarms? If not likely to throw back the bees, I would prefer to transfer the bees in the middle of May, so as to give them the benefit of the enlarged hive, and perhaps prevent swarming. The swarms here generally come off about June 20th. Perhaps "A Lanarkshire Bee-keeper" will help me.—A BEE-KEEPER.

[If the hives of bees are tolerably strong I would advise their being transferred to their new ones whenever a fitting opportunity occurs. Only fill the upper hive with five or seven combs in the centre, and one or two on either side with comb-foundation, filling the bottom one with foundation as proposed and the remaining frames, having those with brood under the brood ones in the upper box. If, however, the bees are weakly, wait a few weeks until they are stronger. The advantage gained by putting in foundation in the outsides of the upper box is to obtain as much white comb as possible. If the queen is young, prolific, and healthy, the increased space should prevent swarming; but without the former all the devices of man will not prevent it. The dried peat seems to me good in connection with hives, both as you have employed it, as well as for filling in space between the inner and outer wall, and perhaps in other ways in connection with the preserving of bees in a healthy state during winter.—A LANARKSHIRE BEE-KEEPER.]

## TRADE CATALOGUES RECEIVED.

Thomas Painter, Smallwood, Scholar Green, Stoke-on-Trent.—*Catalogue of Dahlia Plants.*

A. M. C. Jongkindt Coninck, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.—*Catalogue of Trees, Shrubs, and Hardy Plants.*

Bruant, Boulevard Saint-Cyprien, Poitiers (Vienne), France.



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CORRESPONDENTS.—We desire to assure those of our correspondents whose letters and communications are not promptly inserted that they are not the less appreciated on that account. Our pages are practically filled several days prior to publication, and letters arriving on Wednesday morning, except by special arrangement, are invariably too late for insertion. The delay in the publication of some of these is not of material importance,

but reports of meetings and shows held a week previously lose much or all of their value if not received in time to appear in the current issue.

**Epicurean Victory Pea (J. Smith).**—The sample sent is very good indeed. We will sow the Peas, and if the variety prove equal to the Epicurean we have already grown we shall be satisfied; if it excels it, as the name denotes, it will be of very superior merit.

**Acacia platyptera (William).**—Nearly or quite all large nurserymen who deal in stove and greenhouse plants can supply this Acacia, and as so many sell plants it would be invidious for us to recommend any particular dealer. Perhaps you have not applied to anyone for plants.

**Beetle Eating Plants (J. W.).**—Your beetle is the voracious weevil *Curculio* or *Otiobryncus sulcatus*. We are unaware of any ready mode of riddance. They should be sought for assiduously, as they deposit eggs from which maggots are hatched, these in turn developing into weevils. Choice Orchids should be stood on flower pots inverted in larger saucers of water. It has been said that an infusion of aloes and quassia renders plants distasteful to these pests, but we have not had occasion to test the matter.

**Abnormal Lapageria (G. H.).**—The arrangement of the flowers is quite unusual, inasmuch as they turn upwards by an acute curve of the peduncle which is 2 inches long. This would obviously not be an advantage with a plant trained to a roof, but secured to a balloon trellis a densely flowered specimen would be highly effective. The spray you have sent appears to be an arrested growth, this often resulting in monstrosities, and it is uncertain whether the character could be fixed or not. You have nothing to lose by trying, and if you succeed in establishing plants in which all the flowers are produced like those on the spray before us you will, so far as we know, have a distinct variety.

**Rhynchospermum jasminoides to Flower in August (Constant Reader).**—To have this plant flower in August it would need to be retarded in a cool house with a north aspect; but as it is now in flower it cannot be had in flower again by August, as it must needs make a fresh growth, ripen it, and a season of rest. It is not a stove plant, only requiring cool treatment, and does well in a greenhouse.

**Supplying Water to Houses (Idem).**—The pipes will not convey the water from the large tank to the smaller ones in the houses, as they are 3 or 4 feet higher. The water must be forced into the smaller tanks from the larger one, and we cannot suggest anything better than a force or lift pump, or an ordinary pump at each tank, so as to draw the water from the large tank. For this purpose a lead suction pipe is best about  $1\frac{1}{4}$  or  $1\frac{1}{2}$  inch diameter. Could not the water be pumped directly into the smaller tanks by means of the horse pump? A stopcock on the main to shut the water off the large tank, and a branch pipe laid on to the tanks on the higher level would be the easiest way out of the difficulty, as the mere turning of the valve or stopcock would be all the labour necessary. Two-inch cast iron socket pipes would be the most suitable piping, or it might be lessened to suit the delivery pipe to the large tank.

**Moss Litter for Mushroom Beds (W. W. R.).**—Excellent crops are grown with this material after it has been used in horse stables, but it is much better adapted for flat beds under cover than ridges in the open. Such a small quantity as a ton is not sufficient for outdoor ridges, and you have also turned it over too many times and had it too long under preparation. The instructions to which you allude in Wright's book doubtless refer to the preparation of manure, of which the greater proportion is straw. If you only have a copy of the first edition you should obtain one of the last when it appears, as it will contain a great deal of additional information of service to inexperienced amateurs. If you did not cover the ridge a foot thick or more with litter the heat would be certain to escape. Try this plan now, and fermentation may even yet be excited.

**Grapes on Back Walls of Vineries (Ritterman).**—With the "Vines on the roof 6 feet apart and spurred so that ample light reaches the back wall," there is no reason why useful Grapes should not be grown there; but the light that you consider "ample" may not be sufficient for the production of first-class Grapes. We have seen very good Grapes grown under similar circumstances, and of the late sorts that were tried the Black Alicante proved the best. Gros Colman, however, was not in the trial, and it might possibly do very well. We should try both those varieties.

**Exhibiting Flowers (Gardener's Wife).**—If you were to exhibit flowers in a class from which the produce of professional gardeners is excluded, and you were awarded prizes, although you grew the flowers "entirely yourself," and your husband "did not grow any of similar kinds," the jealousy of other competitors might be aroused, and a protest lodged on the ground that you had benefited by the advice of your husband in growing the flowers. We have known a case of the same kind that led to long disputation and much unpleasantness, and although we believe the exhibitor eventually got the prize money, the cost incurred in securing it was a great deal more than the prize was worth.

**Cropping Vines (F. J.).**—When the laterals are very strong and the bunches small, two may be retained on one lateral "here and there," since it is obvious that two bunches weighing 1 lb. each do not require more support than does one bunch weighing 2 lbs. We have often seen two bunches on one lateral without any detriment to the Vines; but their strength and condition must in all cases determine the weight of the crop. If your Vines were materially exhausted by over-cropping last year, it would be unwise to make a similar mistake this season. The strength of the sub-laterals is a fair index of the Vine's strength, and if growths continue to be produced freely beyond the bunches until and after the Grapes colour, the crop is not dangerously heavy. By sub-laterals we mean the growths that push after topping the shoots, this requiring to be done several times during the season when Vines are in good condition.

**Chili Capsicum Culture (Vectis).**—The plants should be kept close to the glass until showing the second leaves, when they should be placed in 4-inch pots, three in each around the sides and not quite down to the seed leaves, keeping moderately watered, for if the soil is very wet they are liable to damp off, and shade them from bright sun until established. Place them in a light position, and allow plenty of room to keep the plants



sturdy and insure a branching habit. When the pots are well filled with roots shift the plants into pots 7 inches in diameter, and in potting lower them down to the seed leaves, or, rather, the joint where they were. Pot them moderately firm, the most suitable compost being light turfy loam with a fifth of well-decayed manure intermixed. A quart of soot may be mixed with each bushel of compost. Avoid over-watering the plants, but do not let them become so dry as to cause the foliage to flag. Fumigate upon the first appearance of aphides. Red spider may be kept under by syringing. When the pots are filled with roots liquid manure may be given, applying it weak and tepid. If the plants are well grown each pot would afford three dozen pods. The number would be much increased by superior treatment.

**Chrysanthemums for Exhibition (*Chrysanthemum*).**—Plants of Chrysanthemums now showing flower buds should have all such buds taken off, and when the breaks follow and are strong select three and tie them to a stake; but, as sometimes occurs at this stage, if two of the shoots are strong and one weak leave two only, and select a third shoot when the plants break again. Naturally, three blooms to a plant of such large-growing kinds as those you name are sufficient, and in the case of smaller-bloomed sorts, such as Bouquet Fait and Mrs. G. Rundle, for instance, you may retain four stems, which will produce the same number of blooms if all other details necessary are carried out. Such plants as you name in your second question would be perfectly eligible to employ a group of plants in the class you mention for the show in question, but we do not think variegated Fuchsias and Pelargoniums at that season would carry much weight. We have seen variegated Abutilons used for such a purpose with excellent effect, but too many should not be introduced on account of the colour of the foliage; but if you could have a few Palms, such as *Scaforthia elegans*, *Cocos Weddelliana*, *Areca lutescens*, the group could be made much more effective.

**Mushrooms Outdoors (*Black Mountain*).**—They are grown near London on ridges 2½ feet wide at the base, sloping to about 6 inches at the top, which is rounded, the height being the same as the base. In the north the ridges are better 3 feet wide and high. The manure from horse stables is composed of about half straw and half droppings, fermented, partially decayed, and turned till it is sweet. The ridges are made very firm, and after the heat rises and falls again to about 90° two inches beneath the surface, spawn is inserted 9 inches apart, a brick being broken into eight parts for this purpose. The ridges are at once covered a foot or so thick with litter to maintain the heat about 80°; as soon as the spawn is seen to be spreading the ridges are cased with good soil, which is beaten 2 inches thick. The ridges are again covered, and if a thermometer laid on the soil under the litter registers 60° the ridges will be warm enough. In winter they are sometimes covered 2 feet thick, but half that covering often suffices. July is the best month for commencing, the next best December. If you commence now you will fail unless the ridges are in a cool shaded place. We know a grower who gathered and sold 7 tons of Mushrooms from outdoor ridges last year. All the details of culture are given in Wright's "Mushrooms for the Million," the fourth edition of which is being reprinted with a supplement.

**Marechal Niel Rose—Blood Manure (*S. L. B., Liverpool*).**—You have erred in not pruning the Rose, and it is not very easy for anyone to comprehend the real condition of the plant without seeing it. There is no doubt that the plan of cutting back the growths of this Rose after flowering answers admirably in many cases—that is, when roots are active in good soil and there are good buds on those parts of the stems to which the shoots are pruned. If you can see prominent wood buds on a healthy part of the stems you may cut the plant down to them; if there are no such buds, and especially if the root-action is defective, such severe pruning might not result in free growth. Free root-action is the most important factor in producing healthy growth, and this can only be insured with good soil and judicious applications of water. Mistakes in watering nullify the effects of the best of soil, and if this is alternately too wet and too dry nothing can thrive. Liquid manure does more harm than good when given to plants that can derive sufficient food from the soil; when they cannot, and the pots are filled with roots, manurial applications once or twice a week are valuable. Keep your Rose in the lightest position in the greenhouse till the weather is mild, then place it outside in a shaded place for a week or so till the leaves acquire sufficient texture for withstanding the sun. If taken direct from the greenhouse to the full sun the foliage will be scorched. The pot must be shaded from the sun by either plunging it in ashes or sinking in a larger pot when the plant is stood outside. It will not grow satisfactorily in a greenhouse in summer the roof of which is covered with Lapagerias. We know of no means of making hard blood manure soluble than smashing it small and letting it remain a sufficient time in water. An ounce to a gallon of water is ample for strong-growing plants in pots, such as Chrysanthemums; half that quantity for weaker, such as Fuchsias and the others you name; nearly 2 ozs. per gallon may be given to Dahlias when they attain strength, and Roses in the open air. We consider a mixture of superphosphate of lime and sulphate of ammonia preferable to blood manure in the condition you describe.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (C. S.)—The Orchid is *Dendrobium Devonianum*; the other is *Fabiana imbricata*.

**Feeding Bees with Old Honey (*J. D.*).**—If your bees are in want of food, and the last year's honey in the comb is good, and can be put inside the hive so as to constitute part of its comb, do so. But if it is in any way inferior do not give it to the bees. Neither on any pretext whatever lay it outside for the bees to find, as by doing so it would make them vicious and cause robbing, resulting in the loss of queens. If foul brood is anywhere near some of your bees are sure to catch it. If the combs are not such as will fit into the interior of the hive, place them at the entrance of the hives

after the bees have ceased flying, and remove them before they commence in the morning. Do not feed bees with honey that is sour, thin, or candied; use such for domestic purposes and feed the bees with sugar.

## COVENT GARDEN MARKET.—APRIL 21ST.

Trade falling off, and prices of house fruit lower.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	½ sieve	2 0 to 3 6	Peaches .. .. .	per doz.	0 0 to 0 0
" Canadian ..	barrel	12 0	Pears, kitchen ..	dozen	1 0 to 1 6
Cobs, Kent ..	per 100 lbs.	27 6	" dessert .. ..	dozen	0 0 to 0 0
Figs .. .. .	dozen	0 0	Pine Apples English ..	lb.	1 0 to 1 6
Grapes, New ..	lb.	2 6	Plums .. .. .	½ sieve	0 0 to 0 0
Lemons .. ..	case	8 0	St. Michael Pines ..	each	2 0 to 6 0
Melon .. .. .	each	0 0	Strawberries .. ..	per lb.	3 0 to 8 0
Oranges .. ..	100	4 0			

### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes ..	dozen	1 0 to 0 0	Lettuce .. .. .	dozen	1 0 to 1 6
Asparagus ..	bundle	2 0	Mushrooms .. ..	punnet	0 6 to 1 0
Beans, Kidney ..	lb.	2 0	Mustard and Cress ..	punnet	0 2 to 0 0
Beet, Red .. ..	dozen	1 0	Onions .. .. .	bunch	0 3 to 0 0
Broccoli .. ..	bundle	0 0	Parsley .. .. .	dozen bunches	2 0 to 3 0
Brussels Sprouts ..	½ sieve	0 0	Parsnips .. .. .	dozen	1 0 to 2 0
Cabbage .. ..	dozen	3 0	Potatoes .. .. .	cwt.	4 0 to 5 0
Capiscums .. ..	100	1 6	" Kidney .. ..	cwt.	4 0 to 5 0
Carrots .. ..	bunch	0 3	Rhubarb .. .. .	dozen	0 2 to 0 0
Cauliflowers ..	dozen	2 0	Salsafy .. .. .	bundle	1 0 to 0 6
Celery .. .. .	bundle	1 6	Scorzonera .. ..	bundle	1 6 to 0 0
Coleworts .. ..	doz. bunches	2 0	Seakale .. .. .	per basket	2 0 to 3 6
Cucumbers .. ..	each	0 3	Shallots .. .. .	lb.	0 3 to 0 0
Endive .. .. .	dozen	1 0	Spinach .. .. .	bushel	3 0 to 4 0
Herbs .. .. .	bunch	0 2	Tomatoes .. ..	lb.	1 0 to 3 0
Leeks .. .. .	bunch	0 3	Turnips .. .. .	bunch	0 4 to 0 0

### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0 to 18 0	Ficus elastica ..	each	1 6 to 7 0
Arbor vitae (golden)	dozen	0 0	Ferns, in variety ..	dozen	4 0 to 18 0
" (common) ..	dozen	6 0	Foliage Plants, var.	each	2 0 to 10 0
Arum Lilies .. ..	dozen	9 0	Genistas .. .. .	dozen	6 0 to 12 0
Azaleas .. .. .	dozen	24 0	Hyacinths .. ..	dozen	6 0 to 9 0
Begonias .. ..	dozen	0 0	Lilies of the Valley, in		
Bouvardia .. ..	dozen	0 0	clumps or pots, per doz.	18 0	to 18 0
Cineraria .. ..	dozen	8 0	Marguerite Daisy ..	dozen	8 0 to 12 0
Cyclamen .. ..	dozen	12 0	Myrtles .. .. .	dozen	6 0 to 12 0
Cyperus .. .. .	dozen	4 0	Palms, in var. ..	each	2 6 to 21 0
Dracena terminalis,	dozen	30 0	Pelargoniums, scarlet,	doz.	4 0 to 8 0
" viridis .. ..	dozen	12 0	Primulas, single,	dozen	0 0 to 0 0
Erica, various ..	dozen	12 0	Solanum .. .. .	dozen	0 0 to 0 0
Euonymus, in var.	dozen	6 0	Spirea .. .. .	dozen	12 0 to 18 0
Evergreens, in var.	dozen	6 0	Tulips .. .. .	12 pots	6 0 to 9 0

### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. ..	12 bunches	0 0 to 0 0	Lilium longiflorum, 12 blms.	6 0	to 9 0
Acacia (Mimosa), Fr., per			Lily of the Valley, 12 sprays	0 9	to 1 0
bunch .. .. .	2 0	4 0	Marguerites .. ..	12 bunches	6 0 to 8 0
Arum Lilies .. ..	12 bunches	4 0	Mignonette .. ..	12 bunches	3 0 to 6 0
Azalea .. .. .	12 sprays	0 6	Pelargoniums, per 12 trusses	0 9	to 1 0
Bouvardias .. ..	per bunch	1 0	" scarlet, 12 trusses	0 4	to 0 8
Camellias .. ..	12 bunches	2 0	Poinsettia .. ..	12 bunches	0 0 to 0 0
Carnations .. ..	12 bunches	1 0	Roses (Indoor), per dozen	1 0	to 3 0
Chrysanthemums 12 bunches	0 0	0 0	" Tea .. .. .	dozen	0 9 to 2 6
" .. .. .	12 bunches	0 0	" red .. .. .	dozen	2 0 to 6 0
Cyclamen .. ..	doz. bunches	0 4	Spiraea .. .. .	12 sprays	0 6 to 1 0
Daffodils .. ..	12 bunches	1 6	Tropaeolum .. ..	12 bunches	2 0 to 3 0
Epiphyllum .. ..	doz. bunches	0 0	Tuberose .. .. .	12 bunches	1 6 to 2 0
Encharis .. ..	per dozen	4 0	Tulips .. .. .	dozen bunches	0 9 to 1 0
Gardenias .. ..	12 bunches	2 0	Violets .. .. .	12 bunches	0 4 to 0 8
Hellebore .. ..	doz. bunches	0 0	" Czar, Fr., ..	bunch	0 0 to 0 0
Hyacinths, Roman, 12 sprays	0 6	1 0	" Parme, French, per		
Lapageria, white, 12 bunches	0 0	0 0	bunch .. .. .	2 0	to 4 0
Lapageria, red .. 12 bunches	1 0	2 0			



### FORAGE CROPS.

To have a few ricks of hay to spare in March or April may certainly be taken as an indication of sound practice by either the home or tenant-farmer. If really good such forage can always be disposed of advantageously, for it can be retained in the ricks till prices invite a sale. Occasionally after a long drought or otherwise unfavourable season meadow hay will reach the high figure of £7 per ton, but £4 per ton may be given as an average price for hay in the rick. Farmers who are fully alive to the feeding value of straw, now dispose of most of their hay, and depend almost entirely upon chaffed straw as forage for home consumption. Under good management the chaffing is by no means a daily or



weekly process, but enough is done to fill a chaff house or one end of a barn, the chaff being packed so closely together that it heats sufficiently to develop an aroma almost as fragrant as that in good hay. Straw so managed becomes as palatable as it is nutritious, and it is given to horses, cows, store cattle, and sheep.

After the first outlay upon laying down land to permanent pasture there is a permanent reduction both in the labour of men and horses of the farm, and such reduction may also be regarded as permanent when layers are sown for three or four years; only we must never forget that pastures, whether temporary or permanent, must have an annual dressing of manure of some sort or other. That obtained by sheep-folding is the most economical, that by the application of farmyard manure the most expensive. As there is practically a limit to sheep-folding upon most farms, we adopt the happy mean placed at our disposal in the guise of pure artificial manure. An annual dressing in February of such manures keeps the soil stored with fertility sufficiently for the requirements of the plants growing in it, and, what is still more important, the sustained vigour of the pasture leads eventually to a remarkable increase in the bulk of the crop. It does not answer to suffer the pasture, or rather the soil in which it grows, to become almost exhausted of fertility before giving more manure. We must not suppose half a dressing yearly, or a full one on alternate years, will suffice, and if we can contrive to apply liquid manure to any or all of the pastures immediately after the grass is mown we insure a quick strong growth at once. This is a matter worthy the especial attention of the home farmer for the pasture of park land under his care, for which the sewage of the mansion ought to be available. The sewage tank should be, if possible, in the park, and far enough away from the buildings to avoid all risk of nuisance from foul odours. A pump is fixed in the side of the tank most convenient for approach with a water-cart, and the sewage is distributed upon the pasture in the same manner that town streets are watered. We need no close calculation as to the exact proportion of nutriment in a given quantity of sewage. It is sufficient for our purpose to know that it imparts fertility to the soil, that its action is more prompt than that of solid manure ever can be, and that it costs nothing. This use of sewage is one of the little matters so frequently neglected on the home farm, yet it is of such importance as to merit especial attention, and we certainly should insist upon having a manure tank, pump, and distributor for every large establishment.

To regard permanent pasture as a panacea for the agricultural depression is wrong. Extreme measures are seldom safe ones, and we fail to see how any farmer, but especially he who has rent to pay for his land, can afford to lay down much land at once. Far better would it be to sow a few acres year by year till a fair proportion of the farm is in pasture, and to do this work really well. Mr. Martin J. Sutton's new book on permanent and temporary pastures is a pleasant sign of the favour with which this branch of agriculture is now regarded, and farmers will find the investment of a guinea in its purchase a profitable outlay, if only they will try and shake off the too common feeling of prejudice against "book learning," for this work is thoroughly practical, and its teaching sound. To those who have hitherto been content to sow annually Red Clover for a supply of green food and stover, it offers some valuable hints on mixtures for leys or layers of one to four years' duration. In the first we are recommended to sow Italian Rye Grass, Perennial Rye Grass, Cocksfoot, Broad Clover, Cow Grass, White Clover, Alsike, and Trefoil, preference being given to some of these for hay, and others for grazing, and the reason for such preference is fully explained. In the second we have a large proportion of Cocksfoot—of which, by the way, we regret to find mention in another part of the book as "the Fashionable Grass," and we submit that it is much too valuable a forage plant to be spoken of thus slightly—Timothy is added, and more Perennial Rye Grass, White

Clover, and Alsike used, while the entire quantity of seed is increased. For three and four years the character of permanent pastures is approached more closely, but the finer Grasses are excluded, the Fescues and Foxtail being added. "The first year's crop," we are told, "will mainly consist of Rye Grasses and Clovers, but the bottom of a three or four years' ley may be expected to improve for at least two years, and the Foxtail, Timothy, Cocksfoot, and other plants will increase in bulk in the third and fourth seasons."

Other forage plants worthy of especial attention are Lucerne and Sainfoin, which latter is very useful where it is found to answer. We have just sown seventeen acres of it in a deep rich loam on a calcareous subsoil. We prefer sowing Lucerne in drills wide enough apart to admit the horse hoe for clearing purposes, and then with an annual dressing of manure we are able to retain it for several years.

#### WORK ON THE HOME FARM.

Mangold sowing is now almost finished once more, and our payments for artificial manures are at an end till autumn. This is the only matter in which we have been at all extravagant, but we hope it was done wisely and well. At any rate we carefully considered ways and means before giving a single order, and we kept our balance at the bank carefully in mind, for we have resolved that nothing shall induce us to borrow money for farming. On the other hand it is unwise to allow much money to remain idle in the banker's hands; far better is it to have money at work, and to turn it over as quickly as possible. Little profits accumulate, only to secure them we must be up and doing, and be prompt to seize every opportunity as it occurs. The strong prejudice which exists in the eastern counties in favour of Orange Globe Mangolds has induced us to procure seed of the best sort of it for each of our bailiffs; but we have had six acres specially prepared and sown with Long Red Mangold under our own eye upon the home farm, our aim being to show that this sort of Mangold can be made to answer under ordinary care, and afford results superior to those yielded by any other Mangold. Swedes and White Turnips will follow in due course in land now under Rye. This Rye has had a hundredweight of nitrate of soda per acre, and after it has been folded with ewes and lambs we consider it will be sufficiently stored with fertility to yield a good crop of roots. The Swede and White Turnip land upon which the flock was folded recently has been ploughed and sown with Black Tartarian Oats. It was originally our intention to have sown Spring Tares there, but we decided to have the Tares after some Rye Grass on an off farm, where we shall have the option of folding the Tares or ploughing them in. That off farm is in such poor plight that there was a heavy loss upon it last year. Some three or four years ago it was thrown upon the landlord's hands by a tenant who had "farmed it out," and it has proved no light matter to bring it back to good condition. Land undrained, foul with twitch, poverty-stricken, is not easily set right. Let landlords bear this in mind, and if by reasonable concessions it is possible to induce tenants to farm well and to retain their holdings, let there be no hesitation about the concessions, or in other words about a fair reduction of rent. We are now, at any rate, fully face to face with the depression and its results, and it may be taken for granted that the letting value of land can never return to the high rates of ten years ago; colonial influences will prevent that. If farmers have had a reduction of rent proportionate to the falling off of prices in farm produce they certainly have no just cause of complaint.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1886.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	ln.	
April.											
Sunday .....	11	29.531	57.6	36.7	N.	42.2	53.5	32.2	95.3	27.0	0.014
Monday .....	12	30.067	44.7	39.1	N.	42.2	50.3	32.2	99.2	26.8	—
Tuesday .....	13	30.291	46.7	43.9	W.	42.8	55.4	34.3	97.7	25.8	0.022
Wednesday ..	14	30.289	48.4	41.7	N.W.	43.8	53.8	44.2	69.2	41.8	0.018
Thursday .....	15	30.268	41.7	44.4	N.E.	44.4	55.5	39.3	103.2	32.4	0.014
Friday .....	16	30.199	43.4	40.1	N.E.	44.6	52.2	39.5	99.2	34.8	—
Saturday ....	17	30.070	42.4	40.9	N.E.	44.2	48.4	37.7	63.7	35.4	0.029
		33.101	44.3	41.4		43.5	53.6	37.1	88.6	32.0	0.097

#### REMARKS.

11th.—Showers in morning, otherwise fine; faint lunar halo at 9 P.M.

12th.—Glorious day.

13th.—Fine and pleasant, but cloudy after the first part of the morning.

14th.—Showery early, fine and pleasant afterwards.

15th.—Fine bright morning, spots of rain at times in afternoon.

16th.—Generally fine and pleasant, but occasional spots of rain.

17th.—Dull and drizzly.

Temperature much the same as in the previous week, except that the nights were rather colder, there being frost on three nights.—G. J. SYMONS.





## COMING EVENTS

29	TH	
30	F	
1	S	
2	SUN	1ST SUNDAY AFTER EASTER.
3	M	
4	TU	
5	W	Society of Arts at 8 P.M.

## THE PAST AND FUTURE OF THE ROYAL HORTICULTURAL SOCIETY.

**F**OR some time past a feeling has been growing and deepening that the position of the Royal Horticultural Society as regards its location and tenure at South Kensington is the reverse of satisfactory, and if we are not misinformed preliminary steps have been taken with the object of severing a connection that is to say the least incongruous, and which must sooner or later terminate, it may be abruptly, and result in the pitiable spectacle of an old chartered Society being cast out on the world without a habitation.

Nothing can be more unwise than to take any rash steps that may lead to sudden and fundamental changes in established institutions; at the same time it is none the less necessary to avoid a rigid adherence to existing arrangements through the force of sentiment alone. When the circumstances of the time indicate with sufficient clearness future possibilities, and these are not such as can be favourably anticipated, the most destructive of all policies is to stand still and trust to chance to avert in some miraculous manner the danger that is seen looming in the distance. It cannot be said that those in whom the interests of the Royal Horticultural Society are vested have acted precipitately in the conduct of its affairs. On the contrary, there is not wanting a feeling that if there is a lack of anything it is of a disposition, as it is expressed, to "launch out." It is very easy for persons of sanguine temperament and free from the responsibilities of office to advocate changes and force on the popular remedy for all ills—an "advanced policy." It is well that outside pressure should be exercised as a stimulant to progressive action in consonance with ever-changing circumstances; but it is nevertheless imperative that responsible officials consider well before taking a "new departure" that may be fraught with important consequences. The change now projected is too momentous in its nature to be lightly made, and it ought not to be made without very serious deliberation; and considering the habitual caution of the Council of the Society, it may be reasonably, not to say confidently, expected that if anything like an unanimity of feeling prevails in favour of a transference of the seat of government, that very strong reasons exist for the important step contemplated.

What are the facts of the case? In the first place, even if the Royal Horticultural Society had a certainty of tenure at South Kensington, its objects and those of the Royal Commissioners, who are the owners of the property, are far from being identical. That of itself, however, may not be sufficient to justify a divorce, though it is evidence of the initial mistake that was made in the union that was effected in 1859. For some time anterior to that date the Horticultural Society had been in financial difficulties, mainly through unremunerative expenditure on shows and general unpopularity. In 1856 it was only by a special effort of earnest horticulturists the Chiswick Gardens were saved, and

a proposal was made to effect an union with the Crystal Palace Company. In 1858 it was decided to sell the Society's house in Regent Street, and it was sold in the following year, the Chiswick Gardens being again saved, but only by the strenuous action of practical men and against the proposal of the then Secretary and Council. The library was also sold. The late Prince Consort then became President, and first acted in that capacity, attended by the Queen, at a show in St. James' Hall. In the meantime the great scheme was propounded, under which a vacant space was to be converted into a splendid garden, and the Society, which was to share in the undertaking, was to realise a brilliant career. No more debt, no more contentions, nothing but harmony was to reign, and a cloudless future was confidently anticipated—by the promoters of the scheme, but not by all who were concerned for the best interest of the Society as the exponent of scientific and practical horticulture in this country.

The meeting, at which the decision was arrived at committing the Horticultural Society to enormous responsibilities, was held in the theatre of the Society of Arts on July 20th, 1859, being the adjournment of a previous meeting held on June 9th. The opening meeting, which was described in our report of it as "one of the most important that was ever held since the establishment of the Society, to consider a proposition which emanated from the Royal Commissioners of the Great Exhibition of 1851 for the construction of a grand horticultural garden on a plot of ground in the possession of the Commissioners at Kensington." The attendance was small, "being by no means commensurate with the importance of the subject." Dr. Lindley in advocating the scheme pointed out that the Council had been in communication with the Commissioners, who wished to know if the Society would form a new garden upon the ground placed at its disposal, and that a Council meeting had been "held at Buckingham Palace, at which the Prince Consort presided, and His Royal Highness thought that the proposition was of sufficient importance to be discussed by the Society at large." It was not, however, so discussed; for Mr. Charlwood proposed that a circular should be sent to every member with full details of the plan. He objected to the scheme, because it was not one which went to further the objects for which the Society was founded, and deprecated the outlay of £50,000 debentures. No notice was taken of that proposition; but a resolution was carried in favour of the plan generally, that the negotiations should continue, and the final proposals of the Commissioners be reported as early as possible. They were reported to the adjourned meeting on the date named, "at which there were not at any one time thirty-five members present." Yet the momentous resolution was passed "that this meeting approves of the steps taken by the Council; authorises the negotiation with the Royal Commissioners to be continued, and empowers the Council to proceed to raise the sum required for the construction of the garden at Kensington Gore, and if the money should be obtained to complete the arrangements."

There can be no doubt that the decision was arrived at with the greater alacrity in consequence of Mr. C. W. Dilke observing that it had been his duty to keep the Prince Consort and the Royal Commissioners informed of all the bearings of the case, and he was instructed by his Royal Highness, who had looked over the draft report, to say that if the resolution submitted to the first meeting were passed he would assist; but at the same time he (Mr. Dilke) was commanded not to express any opinion on the part of His Royal Highness or Her Majesty, so that there might be no appearance of dictation; but after the passing of the first resolution sanctioning the scheme generally he announced that Her Majesty and His Royal Highness would give donations of £1000 and £500 respectively, that it was also proposed to place the Prince of Wales and the younger Princes and Princesses as Life Governors, and he announced that Her Royal Highness the



Princess Royal of Prussia would become a life member, and further stated that the Prince Consort would take up debentures to the extent of £1000. Such exalted patronage was regarded as a sufficient guarantee for everything, and the requisite sum of £50,000 of debenture stock was speedily forthcoming, on security which, adjudged on commercial principles, could not be regarded as satisfactory.

With the surplus proceeds of the Exhibition of 1851, the Royal Commissioners purchased about twenty-two acres of land for the purpose of erecting thereon a building for a similar exhibition in 1861; but in consequence of the disruption of European relations, and a great continental war unsettling the political balance of many friendly states, the idea of holding the Great International World's Fair was abandoned. The land was idle, and some fertile brain suggested the application of it to a grand summer and winter garden in the centre of the town residences of the nobility and gentry, yet within easy reach of the public generally, and the alliance of the Horticultural Society was sought for and obtained to the project on decidedly favourable terms to the landlords and apparently so to the Society. The former agreed to incur the expense of the architectural part and earthworks, estimated at £50,000; the Horticultural Society that of the horticultural portion of the works, raising for that purpose an equal sum. In return for this the Society to have a lease of the gardens for thirty-one years, subject to the payment of an annual rental on the following basis:—The rent to be ascertained with reference to the receipts of the Society in each year—that is to say, there should be first deducted from the sum of the gross receipts—(1) such a sum as shall be allowed by a committee in respect of expenses; and (2) the amount which may be payable by the Society for interest of any money not exceeding the sum of £50,000 borrowed by them for the works on the land. For regulating the amount to be deducted by the Society in each year for its expenses a committee was appointed of six persons, three nominated by the Commissioners and three by the Society, the chairman selected by the former, and he having "two votes in case of an equality in voting." It will thus be seen that the first charge on the receipts from the gardens was to be the current expenses of the Society, regulated and governed by the "Expenses Committee," second the interest to debenture holders, and lastly the payment of rent to the Commissioners. In the event of the Society being unable for any period of five consecutive years to pay the interest on the debenture account, the right of re-entry was claimed by the Commissioners without payment of compensation to the Society. That is an outline of the great scheme by which the Royal Commissioners succeeded in adding to the value of their and the surrounding property with the moneys of confiding debenture holders, who, under the glamour of the circumstances of the time made advances not on the gardens or freehold, but on the profits of the concern, and these, through extravagance during the early years of the union, and dissensions afterwards, failing, resulted in loss to individuals and discredit to the Society.

In 1860 everything was regarded as satisfactory. Twelve members of the Royal Family joined, and the following year the Queen granted permission for the Society to be styled the Royal Horticultural Society. As might be expected rank and fashion followed Royalty, upwards of 600 Fellows joining within six months. The Fruit and Floral Committees were transferred from St. Martin's Place, and sat for the first time at South Kensington on Shrove Tuesday, 1861. In December of the same year the Society sustained a great and irreparable loss by the death of the Prince Consort; and though the Queen expressed her wish "that the gardens should be considered as under her special patronage and protection," turbulence soon followed through extravagance, the interests of horticulture were practically ignored, and Chiswick almost entirely neglected. "Music and masquerading" perhaps fairly describes the doings of the time, as in one year £3000 were expended in

bands for the fashionable promenade. Shortly afterwards, and simultaneous with the illegal appointment of Mr. H. Cole on the Council, the horticultural representatives (Earl Ducie, Dr. Lindley, Mr. James Veitch, Mr. Robert Cooper, and Mr. John Fleming) resigned, and within about five years of the connection with South Kensington the Society had expended £73,000 in completing the garden, and was involved in a debt of £53,000, the whole of its liabilities previous to the undertaking being £4000. And even then the gardens were not finished, yet the Society was enchained to the scene of its ruin.

This Journal had no share in hastening on and cementing the alliance that is now ended. Commenting on the arrangements in 1859, it is recorded in its pages:—"We need not enter into the particulars of the scheme further than to say that it is one which the Fellows of the Society who are interested in the advancement of horticulture, and in preserving the legitimate objects for which the Society was instituted, should regard with great caution, and not allow themselves to be hurried into it without having some security and some assurance that these objects will be maintained. The decline of the Horticultural Society has been brought about by a lavish and unremunerative expenditure and mismanagement. To raise it from inanition ample funds must be provided. Believing the new movement will be productive of a considerable income, we are of opinion that if this be faithfully applied to the development of the objects originally contemplated by its founders, the Society will again take a respectable position among the great institutions of the country. But this end is not to be effected in the ornamental garden and fashionable promenade at Kensington Gore. The real working and telling effect of the Society must be carried out elsewhere; and before we give our entire and cordial support to the scheme now proposed we must have an assurance that the garden at Chiswick will be maintained in its integrity. If the Council give no such assurance the whole of the present proceedings must be regarded as nothing more than a great commercial speculation got up under the wing of the London Horticultural Society, but too little regarding the objects for which the Society was formed."

There is this difference now in the relative positions. Instead of the speculation being "under the wing" of the Society, the Royal Horticultural Society is "under the wing of the commercial speculation." Is it either dignified or advantageous for it to remain so? The Royal Horticultural Society retains its position at South Kensington by sufferance of a body, most respectable and influential, but which has no sympathy with its work or objects. It occupies the position of caretaker and nothing else, and, like all other caretakers, is liable to dismissal at a moment's notice. So long as the gardens were maintained in an attractive state, and there was in consequence a steady accession of local Fellows, there was some reason for remaining, but the gardens can never again be what they were before the inauguration of the present series of industrial exhibitions. They are practically demolished, and vast sums expended in forming and furnishing them squandered. And even the shows held on their site cannot be sustained for any length of time. That of the present season, the "Colonies," which promises to eclipse all its predecessors, may or may not be the last; but whether it is or not, it is sufficiently evident that the Royal Horticultural Society can no longer be strengthened by accessions of local Fellows. Such "supporters" who have no sympathy with the Society's objects, but have joined for the sake of local advantages, have been a source of weakness rather than strength in the past, in diverting the resources of the Society from its legitimate objects and alienating persons who are actually interested in horticultural pursuits. It is this great class to which the Society should more directly appeal, and it is a question if it would not be better to have the seat of government of the Society nearer to the commercial centre than at present. The great and rich mercantile community, as is well known to nurserymen and horticultural builders, are more than ever



disposed to share in the pleasures of gardening, and they enter with great zeal into the particular branch of the pursuit that commends itself to their taste and support.

The Royal Horticultural Society, that has now been established upwards of three-quarters of a century, should have headquarters of its own convenient both as to site and structure, and if a determined effort be made to that end the means for accomplishing it will be forthcoming when it is made known that the whole resources of the Society will be devoted to the work it was established to promote.

## PROFITABLE GARDENING.

(Continued from page 286.)

**VIOLETS.**—For the past six years I have strongly advised my friends to “go in for Violets,” and I am pleased to say those who have taken my advice are well satisfied with the result. Not only have the beds of Violets proved very remunerative, but they have also served the good purpose of finding occasional and at times daily employment for numerous men, women, and boys at a time of year when other work is not always plentiful. I am not prepared to advance any statistics, neither are they necessary for my purpose, but I can truthfully assert that it is hardly possible to grow too many, as they are extremely popular, and retailed at 1d. per bunch they usually sell rapidly. You may vary the size of bunch, or say from twelve to twenty blooms, according to the quantity of Violets available, but as a rule the price must not be advanced or they will not sell. The grower supplies the retailers at the rate of sixteen bunches to the dozen, or for 1s.—that is to say, when a dozen is ordered four bunches are given in, and this may or may not be all the profit the retailer gets over the transaction. Properly treated a few rows of Violets will usually yield an astonishing number of blooms during the winter and early spring months, while an acre or two of them will furnish enough bunches for a large town. It may be that in time there will be many grown, but according to my present experience there is plenty of room for beginners, as I find that if they cannot all be sold in our neighbourhood, there are plenty in other large towns ready to receive supplies of them.

Any ground that suits Strawberries will grow Violets equally as well, both delighting in fairly rich loamy soil. On very light loose soils it is useless to make the attempt unless its character can be changed by the addition of heavy loam or pulverised clay. If planted on rich loose ground they grow too strongly, and are not sufficiently hardy or floriferous in consequence, while the soil must be sufficiently holding or but little progress will be made, red spider being in the ascendant. The well exposed beds are usually the hardest, but this past winter the conditions have been reversed, and it is only those among the fruit trees from which they received some protection that have bloomed freely. Even the latter no more than paid their way, and by this it will be seen that there is a certain amount of risk to be run by those who grow Violets extensively. At present the variety known as the *Ozar* is most generally cultivated, and under good culture these grow to a good size, but in time *Victoria Regina* will replace it. Now is the time to divide and replant all Violets that have done flowering, and every strong crown properly trimmed of all runners and firmly dibbled out in good soil will soon grow to a good size. In the open fields they may be disposed 12 inches apart each way, and need not be disturbed for two years. On our strong and rather rich ground we plant them 15 inches apart each way, and these are unprofitable after the first season, consequently the whole of ours have to be replanted every year, though not necessarily in fresh positions. Where they last for two seasons half of the ground should be planted every year, or, as it happened last summer in the case of a friend who replanted the whole of his stock, a wholesale failure may result. As a rule Violets may be planted in succession to almost any crop without manure being added to the ground, but they impoverish the ground very much, and if replanted in the same position a dressing of solid manure in preference to artificial should be given. During the summer they are benefited by a mulching of either short manure, leaf soil, spent tan, short grass from the mowing machine, or even common garden soil, this being applied either before the ground has become dry or directly after a soaking rain. If no mulching is given the flat hoe must be run among them occasionally, and if the season is hot and dry an early soaking of water is necessary. In all cases all superfluous runners should be trimmed off and weeds kept down, the aim being to secure stout crowns and healthy, though not

over-luxuriant foliage. During a mild winter a continuous supply will be produced, and it must be a very bad winter if they prove unprofitable. It is almost needless to add that the blooms should be neatly, but not tightly, bunched up with two or three well-matured leaves with them.

**FRAME VIOLETS.**—In the case of open-air Violets there is, as I have shown, a certain amount of risk to be run, but with those under frames there is none at all, as the blooms are available for several months during the winter and are eagerly bought up. To show how profitable they are, I may mention that a friend recently gathered eighty-six bunches of about nine blooms or less in each from a three-light frame at one time, and took them to a town in a colliery district where he attends weekly. No one asked the price of them, but in about two hours they were quietly “collared,” and the orthodox price—viz., one penny, paid. Rather larger bunches sometimes fetch 3d. and 4d. per bunch, but those who have a quantity to dispose of are advised to sell the cheap bunches and get rid of them rapidly. The sort known hereabouts as *Marie Louise*, but which happens to be the *New York*, is most profitable in frames, and I find *Comte de Brazza's White* or *Swanley White* nearly as floriferous and, being pure white, decidedly of the most value. *De Parme* appears to be a strong grower and the blooms are larger and have longer foot-stalks than *Marie Louise*, and may eventually replace it. *King of the Violets* is a fine dark blue variety, and the rather scarce though very old *Tree Violet* produces its richly coloured blooms very freely during the winter and well into April. All these are doubles, belonging principally to the Neapolitan section, and they are much more profitable than single sorts for frame culture.

To the ground intended for double Violets we usually add a good dressing of either fine manure, old Mushroom-bed refuse, or leaf soil, this being forked into the surface in preference to digging it in freely. For the benefit of the inexperienced it should be mentioned that double Violets are not grown constantly under glass, but are prepared in the open ground, and either covered with frames or lifted and planted in pits or frames. The ground should be well worked, the position being fairly open and sunny. Strong old plants may be freely divided, every strong crown properly trimmed and dibbled out growing into a strong plant during the summer. Ours are disposed about 9 inches apart each way, at which distance they well cover the ground, and may therefore be either covered with frames or lifted and replanted in pots. They are in other respects treated similarly to the singles, though in hot positions frequent syringings benefit them, and this in order to prevent the ravages of red spider. Late in September or early in October is the time to lift or to protect, and they should be planted in good loamy soil, just clear of each other and not more than 6 inches from the glass. Shallow frames are best for covering the plants where they are grown, and failing these the plan mentioned by Mr. Oliver on page 290 is to be commended. They require plenty of light and air on all favourable occasions during the winter; indeed, unless the ventilation is well attended to they are liable to damp off wholesale. On fine bright days the lights ought to be drawn off them, care also being taken to protect from severe frosts.—I. M., *Somerset*.

## ON THE ROOT-STRUCTURE AND MODE OF GROWTH OF PRIMULACEÆ IN RELATION TO CULTIVATION.\*

[A paper prepared for the Primula Conference, April 21st, by Dr. M. T. Masters.]

FOR practical purposes it is very serviceable to consider a living plant in the light of a piece of mechanism, constructed and put together to do certain work as efficiently and as economically as circumstances permit. The comparison may serve our purpose without it being necessary to point out where it fails, and wherein lies the great difference between a machine begotten of its predecessors, and who had the like structure and endowments with itself, self-sustaining, supplying its own power from sun and air and water, built up and adapted by its own energy, and one constructed by the art of man, dependent on artificial means for its support and its power, and with no innate faculty of self-adjustment to varying circumstances. Availing ourselves, therefore, of the comparison, we may proceed to discuss what it is our machine is called on to do, how it is enabled by its conformation to do what is required of it, and, incidentally, how we may help or mar its action. The *Primulaceæ* will afford us as good illustrations of these matters as any other family of plants. It is the group which is expressly selected to furnish a text for these remarks, and which, moreover, are, as prescribed, to be limited to a part only of the machine—the root. It is permissible, however, on such an occasion to use the term root in the broad sense in which it is usually employed by gardeners, and not in the more accurate and strictly limited sense in which it is made use of by physiologists.

\* For the communication of numerous specimens illustrative of these notes I am specially indebted to Mr. Dewar of the Royal Gardens, Kew, Mr. Barron of Chiswick, Mr. Correvon of Geneva, Mr. Douglas, and other friends. For some of the drawings I have to thank Mr. Sandgren of Kew.



## THE REQUIREMENTS.

What, then, is our machine—the root—called on to do? In all cases to lay hold of the soil and secure the plant mechanically. How it does this will be sufficiently though incidentally illustrated later on, and it is not a subject on which we as cultivators need linger long. The plants we have now to deal with may be lifted out of the ground by frost, but they are hardly likely to be washed away by floods or uprooted by winds. To pot firmly and press the crown firmly into the soil in transplanting are lessons which common experience teaches, lessons which the conformation of the root to be presently noted, do but accentuate.

Another universal duty imposed on the root is to feed the plant. There is soil-food and there is air-food. The leaves, stimulated by light and heat, collect and transform the one; the roots, influenced by heat, absorb and digest the other. How they do these things is beyond the purpose of this paper to explain, but reference to any modern botanical text-book, and in particular to the truly marvellous revelations contained in the chapters on root movements in Darwin's "The Power of Movement in Plants," will supply the information and afford indications of the processes of absorption, of solution, of fermentation, of transformation, which, with or without the

Fig. 57.—Germination of *P. reticulata*.

agency of minute Bacterian organisms, constitute each root-tip, each root-hair, a laboratory and a workshop. Each root-tip, each root-hair, moreover, is as sensitive as a nerve, not only responding to a touch, but transmitting impressions from the spot touched to adjoining cells. It is as mobile as a muscle, turning towards what is useful to it, bending away from what is noxious or obstructive, threading its way through the soil, and adapting itself to circumstances as if it really possessed intelligence. It acts like the brain, says Darwin; and truly as a sentient organ, receiving and transmitting impressions and directing the course of growth and movement, it would be hard to say wherein its inferiority to the nervous system of the lower animals consists.

In the case of annual plants which live their life within the compass of a few weeks or months there is little else for the root to do than to secure the plant in the ground and to go in search of food and turn it to account when found.

But in the case of perennial plants, such as most of our Primulaceæ, another duty becomes incumbent—that of providing a store-place for water and for food. The food so stored, principally starch and allied substances, is not absorbed directly by the root and packed away, but partly by root-action and soil-food, partly by leaf-action and air-food, is manufactured in the leaves and afterwards transferred and deposited in the root or in the root-stock.

A similar formation of starch takes place in annual plants, but it is used up in process of growth or stored in the seed to be turned to use by the seedling plant when it begins life on its own account. In any case the storage requirements of an annual are small in comparison with those of a perennial. To ascertain how and in what manner the food is obtained, transformed, stored, and employed is surely to put ourselves in possession of information, of any that could be named, the most important for cultural purposes.

Another phase of work which it falls to the lot of the root (*sensu latiori*) to achieve is that of propagation, and by observing how this is effected spontaneously we may surely obtain some useful hints for our own artificial procedures.

Such, then, in very general terms, is the nature of the work to be done; such, in general outline, are the requirements of the case.

## THE MECHANISM.

In the following remarks it is proposed to give a few illustrations of the machinery by means of which the work just alluded to is done, for while the work is in all cases the same, the machinery by which that work is accomplished is manifold in detail.

## ANNUALS.

Very few cultivated Primulaceæ come under this head. Some of the *Androsaces* and *Anagallis* are annuals but speaking from a cultivator's

point of view they might be passed over if it were not for one circumstance frequently ignored or overlooked, though one of great importance—the fact that seedling plants, even of those species destined to be perennial, are, to all practical intents, annuals. Barring the slender resources stored up in the seed, the seedling plants have little store to draw upon, and thus, like the annuals, they must have good food within easy reach, and be provided with rapid means of utilising it, else they wither away.\*

*Centunculus minimus*.—A weed no cultivator would bestow a thought upon, unless it were to compass its destruction, may, nevertheless, serve as a useful illustration. It sends down into the soil a slender tap-root, which speedily ramifies just below the surface, branches and branches again till it, as it were, invades a considerable area of soil. There are no great

Fig. 58.—Root system of *P. rosea*.

"hold-fast roots—none are needed, but, on the other hand, there is a great multiplication of small fibres, and a consequent extension of absorbent surface. Notice, too, that there is no caulicle; in other words, the radicle comes straight away from beneath the two cotyledons without there being any perceptible internode (stalk) between the base of the seed-leaves and the top of the root. In a seedling Primrose may generally be observed the radicle,

Fig. 59.—*P. elatior*.

giving off branches, then an erect cylindrical portion bearing the cotyledons or seed-leaves, but sometimes reduced to very small dimensions; this is the caulicle or tigellum. Above the two seed-leaves is the plumule, consisting

"Some [seed] fell upon stony places, where they had not much earth; and forthwith they sprung up, because they had no deepness of earth; and when the sun was up they were scorched: and because they had not root, they withered away."—Matthew xiii, 5, 6.



of the first leaf or leaves above the cotyledons. In these seedlings it is curious to see how, whilst the primary roots descend vertically, the secondary ones pass off horizontally.

It is quite clear that the seed in *Centunculus* was not buried deeply, for the caulicle is a minus quantity. It is clear also the soil for such a plant should be light, open, rich, well drained. Contrast this with the germination of *Primula reticulata*, in which not only is the tigellum very long, but the two cotyledons are also raised on long, erect, or ascending stalks, as if the plant grew in the clefts of the rocks, and had a long distance to thrust its seed-leaves into the light and air (fig. 57). The requirements of seedlings are, it need hardly be said, of the same character. We all know the care that is requisite to secure the germination and the rearing of these delicate organisms.

"In the morning sow thy seed, and in the evening withhold not thine hand."  
—*Eccles. xi., 6.*

The mode of growth of the *Androsaces* is similar. They are, it is true, for the most part not annuals, but in their root-growth some of them (the caespitose species) follow the mode of annuals. The seedling plants have roots of the annual character, with a long radicle giving off numerous branches. The adult plant has little provision for storage, but consists of a dense tuft of leaves, from the axils of some of which proceed long slender runners, like those of a Strawberry, and which bear at their ends a tuft of leaves like the parent from which they sprung. From the under surface of this tuft proceed roots like those of the *Centunculus*, and, like them, destined, not for any lengthened use, but only for a temporary purpose; no long time indeed elapses ere the tuft throws out new runners and thus repeats in another generation the process of its own genesis. It would seem



Fig. 60.—*Polyanthus*.

from this peculiar mode of growth that the *Androsaces* speedily exhaust the area in which their roots spread, and having done so haste—

"To-morrow to fresh woods and pastures new,"  
—Milton, *Lycidas*, l. 193.

Whether this is not an indication of value to the cultivator I leave to others who have had more experience to decide. My own want of success with these plants cannot in fairness be attributed only to neglect of the indication!

#### PERENNIALS.

In these, as for annuals, there is need for daily supplies during the growing period, and further, there is the necessity for replenishing the stores. It is necessary, therefore, to consider the root-growth of these plants from two points of view—that of food-collecting and that of food-storage.

The actual absorption of water is, of course, effected in the same way in the roots of perennials as in those of annuals, but the perennial habit allows more time wherein to work, and frequently secures a wider root-range than is possible in an annual. In a perennial, *ceteris paribus*, the roots can travel further, or penetrate deeper in search of food, than in the case of an annual.

In an annual the roots, as gardeners say, "keep at home," and there is not much necessity for a system of conduits to convey the water from its source to the stem; but in perennials it often happens that the best food supply is at some considerable distance from the stem, and the consequence is that the fibrous roots collect the liquid from the feeding-ground, and convey it in so many conduits to the stem. The thicker root-fibres have, as everyone knows, little or no power of absorption, that faculty being mostly limited to

the thinnest extremities of the root-fibres, and to the root-hairs (where present). Of course the number, length, and degree of branching of the roots depend very greatly on the physical nature of the soil in which the plant happens to be growing—

"Pinguibus hæ terris habiles, levioribus illæ."

But when due allowance is made for these circumstances each plant has more or less its own distinct character. The roots of most species of *Primula*, for instance, are very different from those of *Androsace*, and

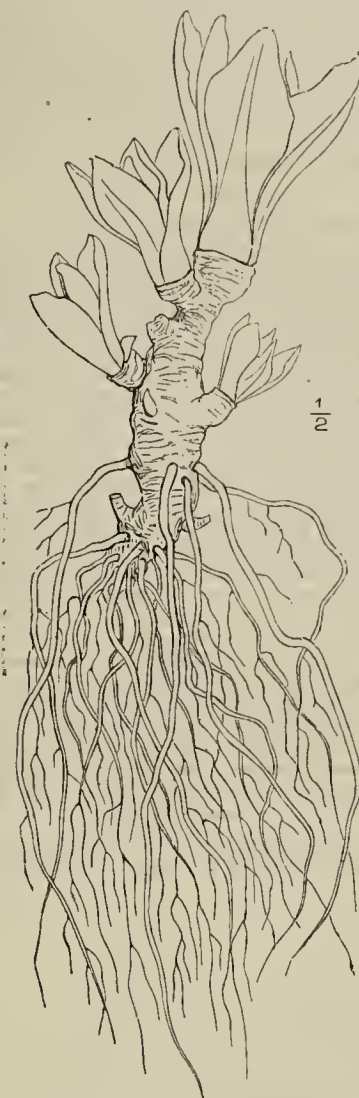


Fig. 61.—Alpine Auricula.

indicate different requirements. But even in the same genus we get variations in this respect. In the common Primrose and Polyanthus, in *P. cashmiriana*, *P. capitata*, *P. amœna*, *P. Auricula*, *P. denticulata*, *P. nivalis*, *P. longiflora*, *P. cortusoides*, &c., the roots are generally rather thick and fleshy, descending more or less vertically for some little distance without branching, and then giving off short nearly horizontal branches with few root-hairs, except in *P. Auricula*, in which, in some cases at least, the roots are covered with a velvety coat of hairs. Such roots are not surface-feeders, but are capable of penetrating to a considerable depth in search of food, while their succulent habit and reserve store of water obviate the necessity for that dense network of fibrous roots that other species present. *Primula rosea* (fig. 58), *P. Kaufmanniana*, *P. involucrata*, and *P. cortusa Matthioli*, afford instances of this densely matted and comparatively superficial root development. They have few if any large root or conduit fibres; but, on the contrary, an intricate mass of fine fibrous roots, penetrating in every direction, and availing themselves, as it were, of every scrap of soil within reach. Surely we have here an indication of the necessity in cultivation of supplying these plants with ample depth and breadth of light, rich, moist, not to say wet soil. The utility of a mulch in hot dry weather is also indicated as a means of preventing the drying up of the surface roots.

In some of the *Androsaces* we find provision for keeping the roots moist and free from the risk of drought. In seedling plants of *A. elongata*, for instance, the caulicle is very long, and the slender radicle descends vertically for a long distance without branching, and then gives off near its tip a leash of much-branched fine filaments.

In *Soldanella* we have a tuft of rather thick fibres, which descend vertically into the soil, and are unbranched till near the points, where they give off numerous relatively short horizontal fibres.

#### STORAGE AND REST.

In perennials we have specially to consider the arrangements for storage of food in convenient places for use when required, and the modifications of structure associated with the periodic alternations of active growth and relative rest. Of a Primrose, whether "by a river's brim," or elsewhere, whether a yellow Primrose or one of other hue, it may be said that at one season its constant care is to increase its store, while at another its aim is to make all snug for winter. Of course the Primrose is not peculiar in these



matters, but we may perchance profit somewhat if we make use of it as an illustration of general application.

#### THE ROOT-STOCK.

The body which emits roots on the one side or beneath, and throws up leaves and flowers on the other is the "rhizome," or root-stock. It is usually subterranean, and so gets called a root, but inasmuch as it produces leaves, buds, and offsets, and has the internal structure of a stem, botanists will not admit its claim to be considered a root, for a root, under ordinary circumstances (exceptis prætermisissis), does none of these things. It is a development of the plumule or of the caulicle, or of both together. Usually it is more or less horizontal in its direction, as in the Primrose, in other cases it is vertical, as in the Auricula, where it thrusts itself above ground, and gives off buds or offsets in such a way that no one can mistake it for a root. Horizontal or erect, it throws down feeding-roots into the soil, and these roots are usually fleshy, serving, indeed, not only as feeders, but as storeplaces as well, thus sharing the office of the stock itself. At the free end of the stock is a bud, or a cluster of buds, by means of which the plant grows (figs. 60, 61, 62). From these buds upspring the leaves and the flowers.

#### POLARITY OF THE STOCK.

Owing to this position of the buds the stock grows at one end, and extends and pushes itself into new territory, while the other end of the stock, having yielded up its store of water and starch to the growing bud, gradually decays. Thus the plant effects very quietly and gradually a change of residence—an indication of the desirability of occasional transplantation. This progressive decay at one end suggested to old Auricula growers the "removal of the end of the Carrot," and there was nothing to be said against the process provided their surgery was confined to dead portions only, and did not include the healthy and (potentially) active roots also. In such a case the stock is put to the trouble of making new roots, which, to say the truth, it does not fail to do speedily under propitious circumstances.

The progressive growth at one end associated with progressive decay at the other, is a very marked feature in Primulaceæ. Moreover, it is often manifested in the earliest period. The root apparatus of the seedling plant seems destined for the use of the seedling only (which is thus, as before noticed, practically an annual), and when the plumule develops gradually into a permanent stem with its leaves and potential flowers, new roots are thrust out from the plumule, as may be seen in the illustrations of *Primula r. tunicata*, *P. elatior* (figs. 57, 59), and in *P. verticillata*.

The development of the tufted stem from the plumule is well exemplified in the case of the Cowslip, as pointed out to me some years since by Mr. Holland. The seedling plant germinates in the usual way, but after a time the weight of the rapidly growing plumule causes the caulicle to bend downwards and become more or less horizontal. Adventitious roots are then thrown out from the top of the original caulicle or the base of the plumule, which gradually decays, leaving the young plant independent. (Hefrey's "Elementary Course of Botany," ed. 4, p. 654.)

#### PROTECTION.

One other provision with reference to root-stock may here be noted, and that is the manner in which in most species, notably in *P. latifolia*,

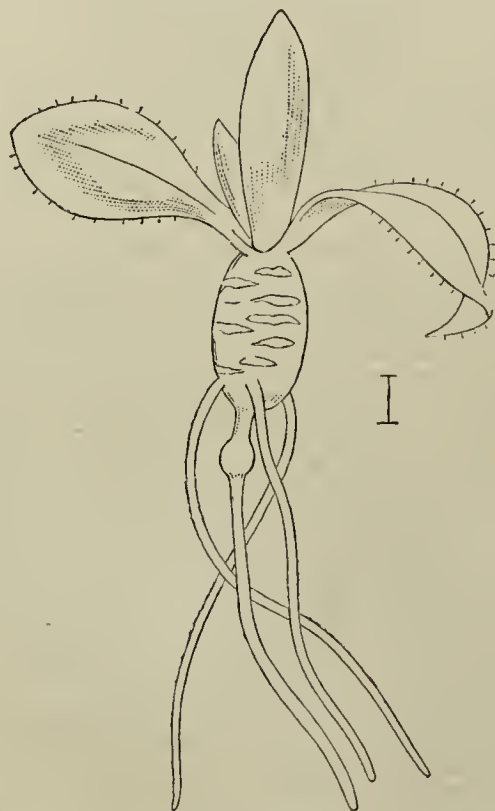


Fig. 62.—Auricula.

*P. graveolens*, *P. Palinuri*, the deeply descending rhizome is protected from loss of heat, as also from mechanical injury, by the dense covering afforded by the remains of the old leaves. Contrast this state of things with the way in which Auriculas thrust themselves out of the ground, their root-stalks showing little or no trace of the leaves beyond the scar, which indicates the place whence they have fallen. It would be interesting to ascertain whether these peculiarities in the Auricula may not be connected with the development of offsets (buds) from the side of the rhizome (figs. 61, 62.)

#### TUBERS.

The tuber of a *Cyclamen* (a development originally from the tigellum) is essentially the same as the root-stock, differing only in its more or less globular form. It throws off feeding roots from its base or its sides, and it forms a bud or buds at the top. Its fleshy tissue is laden with starch and building material for new growth.

In *Trientalis*, from the caulicle or from the base of the plumule emerge long subterranean branches, which end in thickened tubers like those of *Convolvulus sepium*.

#### WINTER BUDS.

In *Primula rosea* and *P. involucrata*, *P. farinosa*, *P. rotundifolia* (herbarium spec.), and probably in many other species, we find what may be termed winter buds. In point of fact, the stock in these cases decays away almost entirely, leaving only the buds which form at its extremity or at the ends of its branches. These buds are made of dilated leafstalks densely packed one over the other, like the similar parts in a "head of Celery." They are furnished at the base with numerous root fibres, very fleshy in *P. involucrata fibrosa* in *P. rosea* (fig. 58), and which serve to supply sufficient moisture in the dry season. Carefully stowed away in the centre of the leaves is the inflorescence, whose tiny pearl-like flowers may be seen securely nestling, even in midwinter, beneath their protective wraps exactly as in the case of bulbs, or Cabbages in which the leaves "turn in" well. *P. denticulata* is not so fortunate. In this plant the leaves spread widely and do not close up to cover the inflorescence, the consequence of which is the latter is apt to be stimulated by the capricious and unseasonable gleams of sun that we get in some winters, and bursts into bloom at a time when "a frost, a killing frost," is only too likely to damage the blossoms, or, if this does not happen, the flowers are liable to be rotted with wet or snow. Of course this is easily prevented by laying a Fir branch or other protection over the plant.

The formation of a thick root-stock of tubers, of fleshy roots, or of large winter buds, may all be taken as indicative that the plant is thrifty enough to lay by a provision for the future, and, moreover, that it adapts itself to falling temperature and other untoward circumstances, and goes to rest. To afford such rest in our uncertain climate is, as all gardeners know, occasionally a difficult matter. In my own experience, which, if personally small, is vicariously large, I find much virtue in a covering of Fern, straw, or a Fir branch.

The foregoing remarks apply to plants growing in the open air or with no other protection than a cold frame in winter. Under glass the requirements are somewhat different, and the conditions likewise. The plant is grown for some special purpose, and the gardener considers not so much the natural "habit" of the plant under normal circumstances and the way in which he may promote its welfare, as the manner in which he can induce it to adapt itself to his requirements and the conditions he offers. He may even find it requisite or advantageous to invert the natural course of things—to force when the plant, left to itself, would go to rest, to check growth when the natural tendency would be to progress. For instance, the formation of the *Cyclamen* tuber is an indication that the plant under natural circumstances has a season of rest; and before *Cyclamen* culture had reached such a pitch of perfection as it has now attained growers were wont to give the tubers an enforced rest by drying them off. Now that practice is quite reversed; and that such an amount of rest as the old growers gave the plant is not necessary under artificial conditions is shown by the fact that the foliage of the *Cyclamen* is persistent, and no deficiency of food to sustain this prolonged season of growth is to be feared, for food the gardener can give freely and at times when Nature herself might close her stores. This justifies the treatment of the *Cyclamen* as if it were a bulb with evergreen foliage.

Servile imitation of Nature—such imitation, that is, as we can compass!—is, to say the least, not very much better than mechanical routine. The wisdom of the gardener is shown first in his knowledge of plants, and next in the skill and judgment which he brings to bear in inducing or helping the plant to adapt itself to unnatural conditions, and to the fulfilment of artificial requirements.

Whether from the point of view of the physiologist or from that of the cultivator, a thorough study of the life-history of plants is absolutely essential to complete success. It is not given to any to reach the highest standard, but it is a satisfaction to know that every step in the way is a real gain—a link in the chain of true progress—a progress which, at least as far as the community at large is concerned, knows no countermarch.

#### A SYNOPSIS OF THE EUROPEAN SPECIES OF PRIMULA, WITH THEIR DISTRIBUTION.

[A paper prepared for the Primula Conference by Mr. J. G. Baker.]

GROUP I. PRIMULASTRA.—Young leaves revolute, never mealy beneath. Calyx strongly ribbed. Flowers yellow.

1, *P. VULGARIS*, *Huds.* (Primrose).—Leaves narrowed gradually to the base. Umbel sessile; pedicels long. Calyx-teeth lanceolate. Corolla-limb large, pale yellow.—Distrib.: Throughout Europe, except the Mediterranean region.

2, *P. ELATIOR*, *Jacq.* (true Oxlip).—Leaves narrowed gradually to the base. Peduncles produced; pedicels short. Calyx-teeth lanceolate. Corolla-limb large, pale yellow; throat not plicate.—Distrib.: Throughout Europe, except the Mediterranean region. Differs from the hybrid Oxlip by its more villous calyx and paler corolla, not plicate at the throat.

3, *P. OFFICINALIS*, *Scop.* (Cowslip).—Leaves narrowed suddenly at the base to a winged petiole. Peduncles produced; pedicels short. Calyx-teeth deltoid. Corolla-limb smaller, deeper yellow; throat plicate.—Distrib.: Throughout Europe; rare and not typical in the Mediterranean region.

Group II. ALEURITIA.—Leaves often mealy beneath, revolute when young. Calyx not ribbed. Flowers lilac.

4, *P. FARINOSA*, *Linn.*—Leaves small, crenulate, mealy below. Pedicels and calyx also mealy. Calyx-tube campanulate; teeth as long as tube. Corolla-tube short.—Distrib.: Northern and Central Europe, mountains of Spain



5, *P. STRICTA*, *Hornem.*—Differs from *farinosa* by leaves not mealy beneath, pedicels and calyx not mealy, flowers fewer.—Distrib.: Mountains of Scandinavia and Northern Russia.

6, *P. SIBIRICA*, *Jacq.*, VAR. *FINMARCHICA*, *Jacq.*—Leaves broader than in *farinosa*, entire, not mealy beneath. Pedicels longer. Calyx-tube oblong; teeth much shorter than the tube. Corolla-tube short. Flowers few.—Distrib.: Mountains of Scandinavia. The type known in Siberia only.

7, *P. FRONDOSA*, *Janka.*—Leaves large, thin, not mealy beneath. Calyx-tube campanulate; teeth lanceolate-deltoid, as long as the tube. Corolla-tube short.—Distrib.: Mountains of Thrace. Very rare.

8, *P. LONGIFLORA*, *All.*—Leaf like that of *farinosa*, usually mealy beneath. Calyx longer, both tube and teeth. Corolla-tube 1 inch or more long. Corolla-limb  $\frac{1}{2}$ – $\frac{3}{4}$  inch in diameter.—Distrib.: Mountains of Central Europe.

Group III.—*AURICULASTRA*.—Young leaves involute. Calyx short, both tube and teeth.

\* *True Auriculastra*.—Leaves, calyx and pedicels not viscose.

9, *P. AURICULA*, *Linn.*—Leaves large, entire or minutely toothed. Leaves beneath, pedicels and calyx mealy. Bracts small. Flower pale yellow.—Distrib.: Mountains of Central Europe.

10, *P. PALINURI*, *Petag.*—Differs mainly from the large forms of *Auricula* by its constantly inciso-crenate leaves and larger foliaceous bracts. Flower pale yellow.—Distrib.: Promontory of Palinurus, Naples.

11, *P. MARGINATA*, *Curt.*—Much dwarfer than *Auricula*, with strongly inciso-crenate leaves with a white mealy margin. Flowers fewer, lilac.—Distrib.: Alps of Dauphine and Piedmont.

12, *P. CARNIOLICA*, *Jacq.*—Leaves oblong, thin, entire, not at all mealy. Flowers lilac.—Distrib.: Alps of Austria and Lombardy.

\*\* *Erythrodosa*.—Leaves, pedicels, and calyx viscose.

13, *P. VISCOSA*, *Vill.*—Leaves obovate, strongly inciso-crenate. Pedicels twice as long as calyx. Calyx-teeth nearly as long as the tube. Flowers few or many, lilac.—Distrib.: Pyrenees and mountains of Central Europe. Many varieties (*villosa*, *Wulf.*, *latifolia*, *Lap.*, &c.).

14, *P. DAONENSIS*, *Leyb.*—Differs from dwarf few-flowered forms of *viscosa* by its narrower leaves, shorter pedicels and much smaller calyx, with very small obtuse teeth.—Distrib.: Granitic Alps of Switzerland and Austria.

Group IV.—*ARTHITICA*.—Young leaves involute; calyx long; tube cylindrical or infundibuliform. Flowers always lilac.

\* Corolla lobes shallowly bifid.

15, *P. CALYCINA*, *Duby.*—Leaves large, entire, acute, with a distinct white, mealy edge. Bracts large, linear. Calyx  $\frac{1}{2}$  inch long; teeth lanceolate, as long as tube.—Distrib.: Alps of Lombardy.

16, *P. SPECTABILIS*, *Tratt.*—Leaves large, entire, obtuse or subacute, with an indistinct pale edge. Bracts smaller than in the last.—Calyx  $\frac{1}{4}$ – $\frac{1}{2}$  inch long; teeth much shorter than the tube.—Distrib.: Alps of Central Europe; several varieties: was included by Linnaeus under *integrifolia*.

17, *P. INTEGRIFOLIA*, *Linn.*, ex parte.—Dwarfer than *spectabilis*, with smaller leaves and only 1–3 flowers.—Distrib.: Pyrenees and mountains of Switzerland and Lombardy.

18, *P. ALLIONI*, *Lois.*—Dwarf, 1–2-flowered, with very short peduncle and pedicels. Leaves obovate, very obtuse, sub-entire, viscose.—Distrib.: Alps of Piedmont, very rare; and a geographical variety (*P. tyrolensis*, *Schott*) in the Tyrol.

\*\* Corolla-lobes deeply bifid.

19, *P. MINIMA*, *Linn.*—Very dwarf; leaves small, obtuse, sharply toothed, not viscose; flowers 1–2; peduncle and pedicels both very short. Distrib.: Mountains of Switzerland, North Italy, Austria, and Turkey.

20, *P. GLUTINOSA*, *Wulf.*—Leaves obtuse, denticulate, viscose. Flowers many, in a dense umbel, with an elongated peduncle, and large oblong obtuse bracts; pedicels absent.—Distrib.: Mountains of the Engadine, Lombardy and Austria.

### MILDEW ON STRAWBERRIES.

I GROW a great quantity of Strawberries under glass thus. I make temporary frames for 6-feet by 4-feet lights to rest on, thus covering three rows of plants at 2 feet apart, planted in the open ground. The sides are formed with either boards or sacks. I get ripe Strawberries under these lights from eighteen to twenty days earlier than from the plants not covered. Plenty of good fine fruits in both cases, only those outside are free from mildew and the others are not. All goes well until the fruits begin colouring. The front and back rows are the worst, and the middle one the least mildewed. I think the cause of it is the cold nights, for in May last year the pits were often at 90° in the day with abundance of ventilation, and at 5.30 A.M. at 41°. I have left air on some all night, others quite close, without different results. Shading is used a few hours in bright weather after they begin to colour, as I find the fruit will not stand too much sun under glass. A friend of mine called last May, and, asking him if he could suggest a remedy, he said, if I were to run a hot-water pipe round them I should remedy it, but that is not practicable in my case. Much has been said in the Journal about mildew on Roses, I should like Mr. Bardney's opinion about mildew on Strawberries. Could I apply any mixture with the syringe that would not be injurious to the fruit while they were green? If you could help me through your valuable Journal you would confer a great boon on Strawberry growers besides myself.—A READER.

[The cause of mildew in this case is due, not only to the great irregularity between the day and night temperature they are subjected to, but the manner in which they are ventilated. The difference between the day and night temperatures is so great that this combined with a somewhat confined atmosphere is almost certain to produce mildew. Supposing that no cold draughts strike through the boards or sacks used, those rows

towards the outer portions of the frame are subjected at night to a much lower temperature both of the soil and atmosphere than those in the centre. This may to a very large extent be prevented by covering the frame at night with some close material that will prevent radiation; not only the glass but the sides should be covered. I have no doubt that the plants in the morning are covered with dew, which is due to the lowering of the temperature, and if this is not evaporated by early ventilation it adds to the evil. The ventilation of the frame probably consists in drawing up and down the lights alternately during bright sunshine, and if this is the case I am not surprised that the outer row plants have become a prey to mildew. When frames are ventilated on this principle the plants near the front and back practically receive no air, in fact it does not circulate freely amongst and below the foliage. To remedy this, provision should be made for the admission of air freely during favourable weather both to the back and front of the frame on a level with the soil. If this were done there would be very little need for tilting the lights or drawing them up and down without the day proved exceptionally hot; but it would be found that air would circulate freely amongst the plants and they would remain perfectly free from mildew provided cold draughts were avoided, the frame ventilated early and closed early to husband sun heat, so that the night temperature could be maintained as high as possible. I have never found Strawberries prove a great success in frames that have only had provision for ventilating above them instead of below or on a level with the plants. The same remarks apply with equal force to the majority of hardy plants cultivated in such frames.

I have never tried my softsoap solution that I use for Roses on Strawberries, but if your correspondent's plants are attacked with mildew he might try it on a few of them and record the result. I have destroyed mildew on the foliage of plants in autumn by a solution of softsoap and water, using 1 oz. of the former to 1 gallon of the latter, with a good handful of sulphur stirred into each 4 gallons, and then the plants syringed with it. But this would not be practicable when the plants were bearing fruit. Prevention is better than cure, but if the plants are attacked I cannot tender better advice than that given in your last issue, page 308.—WM. BARDNEY.]

### HEDGES.

ON page 297, April 15th, of this Journal I read Mr. R. Inglis's article on the management of hedges, and think his remarks are rather misleading. I do not agree with him in siding up a hedge as represented in fig. 53 A when it has got out of shape or thin and bare at the bottom. Siding it up will not fill the gap, nor will it make a good bottom. The best and cheapest way to make a good fence of an old neglected hedge is to have it plashed and the growths laid. You can in that way stop all gaps with live wood, and get a good bottom. Our method is to get 4 foot stakes, drive them 1 foot in the ground as the work of laying proceeds, cutting all the oldest hard wood out close to the ground, selecting all the youngest wood for laying-in; these to be cut half through close to the ground, then pressed down between the stakes not too thickly; run a binder on the top of the stakes, and you will then have a hedge about 3 feet high. After that let the hedge grow upright for two years, only cutting in the side growths. In the autumn of the second year cut the hedge in the shape represented in fig. 53 C of the Journal, page 297, April 15th—that is, narrow at the top. This is the best way to keep a good thick bottom; the layers make a sort of network as the young growth from the old stools come up between them, and all is then interwoven together, and is much stronger than hedges only topped or sided up. Hedges that have not been layed rarely or ever have a good base. It is a great mistake not to have every young quick fence layed before it is topped. Many young quick hedges are much checked in their growth by being cut in every year, and some twice a year.

Mr. R. Inglis says he has seen young hedges left four or five years to grow without cutting to give them strength, and then had them cut down; this he thinks is most foolish. We grow all our young hedges four and five, and sometimes six years, then they are layed as referred to above, and have the same treatment the first two years after. I also venture to say that a young hedge to grow four or five years without a check and be then cut down will make a far stronger and better fence than the one always kept clipped from the first year it is planted. The frequent clipping is a great check to the roots, which is reduced by frequent clipping as well as the head. We know hedges that have been clipped a number of years often get very wide, and some thin at the bottom. When our hedges that have been layed get too wide we side them up on one side close to the layers, then two years after trim up the other side as close as the former.

Should there be any bare places in the bottom when siding the hedge up cut a few notches in the stools that are bare. This will generally cause the stools to break out below the notches, which will fill up the bare places with young wood. I have often seen gaps stopped with brambles or any rubbish, pressing it close in, thus making larger gaps every year by smothering all young growth under the brambles. Our plan is to have some thin larch poles sawn down into rails, and in each gap we put one long rail, so that it is a few feet longer than the gap, and each end is pushed into the middle of the hedge above and below the gap about 1 foot from the top of the hedge. We then select the shorter bars and saw them up to stakes or poles, and these we drive into the ground in the middle of the hedge and nail them to the long bar, leaving the pales about 1 foot above the bar; that makes the pales about the same height as the hedge. The paling should not be too thick or too close together, and always worked



in the middle of the hedge. This I find is the best way to get weakly places and gaps filled. Nor do I think wide or square top hedges look well, especially for a farm. We have our hedges trimmed as at fig. 53, C, on page 297, and only trim them once a year—that is, the farm hedges. We generally commence cutting the end of September or the beginning of October, and have them done by piece work—that is 4d. a chain of 22 yards, including cleaning up the rubbish and leaving it in heaps. Should the hedge be full of grass at the bottom, we give 1d. more per chain—that is, 5d. per chain. We have our hedges sided up with the hedge knife, or, as some call it, hedge-topper, and always have all the hedges cut upwards. A good workman will cut through at every stroke and make his work look as even as many will with the shears.—BAILIFF AND GARDENER.

## CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 287.)

### SINGLE VARIETIES.

SINGLE Chrysanthemums are not grown nearly so much as their merits deserve, seeing how useful the flowers are for the decoration of vases, mixing so well as they do with Fern or other greenery. Now that the varieties are becoming numerous and the colours more varied a larger demand for plants is sure to take place. They bloom very profusely, and the flowers last a long time either on the plants or in a cut state. They do not require so much space or pot room as those of the larger sections. They have not been much seen at exhibitions owing to a want of variety in colour perhaps, and to the fact that the general style of growing Chrysanthemums for exhibition—viz., a few flowers on a plant to obtain size, is not the best suited for the growth of single varieties. Blooming in masses is the way they show to the best advantage. They are extremely useful when grown to flower later than the ordinary kinds, and are well adapted for growing in a dwarf state for room-decoration in vases; or even as dinner-table plants they are appreciated by some, and the bright-coloured varieties make an agreeable change during the dull season of winter.

The most effective method of cultivating them is growing the plants in bush form similar to that previously described, the cultural notes given under that heading applying equally well to the single varieties. Long spikes branching freely in a natural manner produce flowers in abundance; but where large individual blooms are required the system of growing Pompons for large blooms is specially recommended.

For the production of small plants suitable for vases the following details should be observed. Plant old or young plants on an open space of ground, putting out those struck in January about the middle of May, tying the stems firmly as they grow to stakes to prevent breakage by wind or other accident. Do not top the shoots, but allow them to grow uninterrupted, but in the case of the old plants thin the stems to say six on each; if more spring from the base remove them. Early in September, when the bloom buds are forming, take off the points of the shoots about 8 inches long, insert them in pots, say five cuttings in a 4½-inch, and nine in a 6-inch pot, using sandy soil with a free admixture of leaf mould, and give a good watering to settle them firmly in the soil. If the cuttings are not taken off the plants till the flower buds attain a good size they do not root so quickly, and consequently the leaves flag more when they are taken from the hotbed, for they require a gentle heat with shade to prevent loss of foliage. Sprinkle with tepid water every day in fine weather until they are rooted, then gradually harden off and place in a cool house as near to the glass as possible to keep them sturdy. Each plant will produce several flower buds; if the side ones are removed, retaining only the one at the extreme point of the shoot, this flower will be much larger than if all were allowed to grow. Appended is a list of some varieties to be recommended for growing:—Terra Cotta, Patience, Oscar Wilde, Charley Davis, Mary Anderson, Canariensis Improved, Mrs. Langtry, Mrs. J. Wills, Elsie Maud, Grace Darling, Miss Lulu Martin, Miss Davis, White Perfection, Oriflamme, Mrs. Deane, Gus Harris, Miss Ellen Terry.

### SUMMER CHRYSANTHEMUMS.

With the advent of what are termed summer Chrysanthemums the season has been prolonged to a large extent; still it must be admitted that varieties which bloom so early in the season are not so much appreciated as those which are in season later when other flowers are scarce. Good blooms of some of the best sorts are desirable and well repay any trouble bestowed upon them. Particularly are they appreciated for the decoration of churches, for harvest thanksgivings where white flowers are always in demand. For conservatory decoration there is still a want of that variety of colour which is found in the larger sections. For herbaceous and shrubby decoration they are extremely useful, their habit of growth being in most cases compact, and as they bloom freely they

render the borders where they are employed attractive at a season when many occupants of herbaceous borders are past their best. Good varieties for planting in the borders are Nanum, bluish white, very free; La Petite Marie, white with yellow tint, very dwarf; Lyon, purple; Flora, yellow; Madame Jolivart, white; Mr. W. Piercy, red changing to bronze brown; Anastasio, magenta, very free; Fiberta, yellow; Frederick Marronet, bronze; Mons. Pynaert Van Geert, Japanese, yellow striped bright red; Isidore Feral, rosy lilac and golden centre; Madame Piccol, rosy purple; and Salter's Early Blush, tender rose. Cuttings should be struck in February, topped twice, potted in 4½-inch pots, grown in a cold frame, kept sturdy, and planted out in May, when no danger of frost need be apprehended. Water the plants freely during dry weather in summer, tie the branches neatly to stakes as growth proceeds to prevent them being broken by wind, and allow them to bloom as freely as they will. The following are some of the best sorts for blooming in pots in September and early in October:—Madame Desgrange, large white; La Vierge, white; Mrs. Cullingford, white; C. Wermig, a primrose yellow sport from Madame Desgrange. Cuttings should be rooted in January in the ordinary way, topped once when 4 inches high, and allowed to grow with three stems, when they will branch again, this time selecting three additional branches for Madame Desgrange and its sport. The other sorts may have about ten branches in all. If these are allowed to produce one bloom each the quality of the flowers will be good, providing other wants have been attended to, such as potting as required, at last into 9-inch pots, careful watering and disbudding the flowers; but if more flowers in number are preferred allow extra branches to grow from the natural break.

### VARIETIES FOR WALLS AND BORDERS.

By following out a few simple cultural instructions many spaces of otherwise bleak walls may be made to look gay, and provided the weather is not too wet or frosty blooms can be cut that would put to shame not a few that are grown under more favourable circumstances, and staged at some of the leading shows. The main point is to grow suitable varieties. The reflexed section are best adapted for walls, for owing to the imbrication of their florets the water does not lodge among them so much. Next in merit come the reflexed varieties of Japanese and Pompons, which on account of their floriferous habit make a good show. Single varieties are also suitable, blooming freely and lasting in good condition a long time. A southern aspect is the best position for the plants, and if there is a wide coping on the wall so much the better, as this in a measure prevents the blooms becoming so wet as they otherwise would be owing to drip from the wall. If the wall is 5 or 7 feet high it will be an advantage, as larger flowers and more in quantity can be produced than on a wall not so high. We will presume then that the wall is 7 feet high, and large blooms and a quantity of smaller ones are wished for. Procure early in April a sufficient number of plants which have bloomed in pots the year previously; these are better than young ones from cuttings of the current year owing to the extra number of shoots produced at the base, and are better furnished with branches to begin with. Remove part of the old soil from the roots and plant them close to the wall at a distance of 3 feet apart. If the soil is fairly good add some manure. Should the soil be of a poor character it is better to replace it with some composed of loam three parts, and two parts of manure. Between each two large-flowered varieties plant one Pompon, which will cover the bottom part of the wall; tread the soil firmly about the plants, and when they begin to grow water them freely. If the plants were of good size the previous year they will start into growth with many shoots. Select four of the strongest on each plant, removing all the others except the Pompons, which may have six growths. When the branches are long enough spread them out thinly and fasten to the wall with shreds and nails, continually securing them as growth proceeds. Do not top the branches. When the first break takes place select two of the strongest shoots on each original stem, or more if space will allow, some kinds requiring less space than others owing to the length of their foliage, taking off the remainder. From 4 to 6 inches apart is a suitable distance to train them from each other. Buds will be formed at the point of each shoot toward the end of August. The number required must now be determined, as one flower to each stem is all that can be depended upon when size is the leading question. It is wise to allow about three stems on each plant to produce a single bud, and from all other shoots remove the flower buds, allowing the plants to make another natural break. The result of this will be an increase of the branches and a production of a large number of blooms, as these new shoots will not require disbudding.

As soon as the roots have taken possession of the new soil apply liquid manure in a weak state. The drainings from the manure yard are very good for the purpose, increasing the strength when



the bloom buds are formed. After a hot day thoroughly syringe the plants, this greatly assisting in keeping the foliage clean and in a healthy condition. If the wall is lower and large blooms are required the method of training the plants must be altered, and planting should be done in the same way, except that the Pompons must be dispensed with and the other plants placed 2 feet 6 inches apart. In securing the stems to the wall train them in a slanting direction across one another; by this means long branches can be accommodated without their extending beyond the top of the wall. Thin the branches at the breaks, and select the buds as previously described; but where quantity of flowers is the main object, and the wall not so high, top the plants when about 6 inches long, and continue this topping till the end of June, laying in the shoots as space will allow. As showing the time flowers last upon plants grown at the foot of walls under the method described, at Swanmore Park they commenced to bloom on October 1st, 1885, and continued to do so till the 10th of December, when a severe frost coming quickly after rain put an end to them. In favourable seasons Chrysanthemums bloom freely when planted in the herbaceous or shrubby borders, planting them according to the natural height of growth of each kind; but I do not strongly recommend this system, as a wet autumn spoils the blooms by damping, and a sharp frost in November disfigures them beyond recovery. Pompon and small blooming varieties of Japanese and Incurved are the best for borders.

I append the names of some of the sorts I have found succeed for walls, and no doubt there are many others equally well adapted for the purpose. *Reflexed*.—Golden Christine, Pink Christine, Mrs. Forsyth, King of Crimson, Phidias, Progne. *Incurved*.—Refulgence, Golden Empress, Lord Alcester, Mrs. G. Rundle, Mrs. Dixon, George Glenny, Pink Venus, Othello, Jardin des Plantes. *Singles*.—Oscar Wilde, Patience. *Japanese*.—Dr. Macary, Bouquet Fait, Peter the Great, Elaine, Tendresse, Mons. Mousillac, Margot, Mdle. Lacroix, Harlequin, George Gordon, L'Incomparable, The Daimio. *Pompons*.—White Trevena, Snowdrop, Golden Circle, Nelly Rainford, Rosinante, St. Michael.—E. MOLYNEUX.



At a general meeting of the ROYAL HORTICULTURAL SOCIETY, held last Tuesday, Dr. Maxwell T. Masters in the chair, the following candidates were unanimously elected Fellows—viz., Mrs. Henry Day, Edward Fyson, Mrs. Garbutt, Mrs. Lewin, H. G. Lindesay, S. Nicholls, A. D. Robertson, Fred. H. Smith.

— WE are informed by the Secretaries of the NATIONAL ROSE SOCIETY that arrangements have been made by the Royal Caledonian Horticultural Society to hold the Provincial Exhibition for 1887 in Edinburgh in the second week of July.

— "T.W.G." writes: "Has not 'D., Deal' (on p. 317) made a slip of the pen in calling 'TEA ROSE SUNSET' a sport from 'Etoile de Lyon'? 'Perle des Jardins' is the parent given in Peter Henderson's circular, and generally quoted. Gloire Lyonnaise is not very yellow certainly, though its base is just yellow enough 'to swear by'; but it is a pretty Rose—more like Lamarque than any other variety that occurs to me—and it was well shown by Messrs. Paul of Cheshunt, at South Kensington on the 20th inst., so that it would probably make a good pot Rose. Is not Mr. Mawley (p. 321) perpetuating an error in giving the date of the Hereford Rose Show as July 8th? I understood it had been postponed to Friday, July 9th.

— THE TAUNTON DEANE HORTICULTURAL AND FLORICULTURAL SOCIETY will hold their nineteenth annual Show at Vивиary Park, Taunton, on Thursday, August 12th, 1886. The schedule of prizes enumerates 146 classes, in some of which the prizes are very liberal. One of the principal is that for twelve stove and greenhouse plants in flower, the prizes being £20, £12 10s., and £7 10s. The Hon Secretaries are Messrs. Howard Maynard and Alex. Hammett, 5, Hammett Street, Taunton.

— AN Edinburgh correspondent sends us a box of large and bright CHRYSANTHEMUM SEGETUM BLOOMS, and remarks that he has some plants which have flowered most of the winter, and seem as if they would continue all the summer. The blooms sent are from two different plants.

The small flowers are making an attempt to become double. "Like all Chrysanthemums, they keep a long time fresh when cut. I have some in water that was cut a fortnight ago, and they are as fresh-looking as the day they were cut. In the West of Scotland it is found growing freely amongst the corn as an annual. I am trying some experiments with it, and would like to cross it with some of the single Chinese Chrysanthemums."

— "T. N. R." writes:—"In the large conservatory at the Botanical Gardens, Manchester, RHODODENDRON FALCONERI is now flowering. The plant is under 7 feet high, bearing five huge clusters of whitish flowers, which surmount its handsome foliage, producing a distinct and attractive appearance. Hitherto I have been under the impression that R. Falconeri assumed considerable size ere it evinced a tendency to bloom. If any reader of the *Journal of Horticulture* has succeeded in flowering this species it would be interesting to know what dimensions the plant has attained when flower buds were formed."

— How admirably Orchids are adapted for small town gardens is well exemplified by DR. DUKE'S COLLECTION AT LEWISHAM. Five years ago a dozen plants were commenced with in a house 10 feet by 8; now 4000 plants are accommodated in seven or eight structures. The entire garden does not exceed the eighth of an acre, yet there is a good-sized lawn, mounds of Daffodils, a Fern bank, besides the Orchid houses. These are packed with plants in a manner seldom seen, nearly as many being suspended from the roofs as are arranged on the stages below them. In one narrow span-roofed structure is quite a wall of charming flowers from the stage to the glass. We had merely a twilight glance, and took no names, but saw sufficient to assure us that Dr. Duke has some gems in his collection, and that he is a devoted admirer and skilful grower of this beautiful family of plants. Dr. Duke's residence is within five minutes' walk of Lewisham Junction, and his multum in parvo garden is worthy of inspection and merits further notice than can be accorded in our present issue.

— MR. B. COWAN sends the following note:—"At Pilmore Hall, the seat of E. Backhouse, Esq., in one of the plant stoves is a fine plant of the old CALANTHE VERATRIFOLIA with three spikes. The glass structures are of great extent. In the conservatory is a Chamaerops Fortuni throwing up four spikes, a magnificent Countess of Haddington Rhododendron, a fine Acacia verticillata, which hangs down gracefully, and the contrast is most pleasing. Azaleas were well flowered and plenty of them, while in the outside border Iris reticulata was blooming profusely. The gardener, Mr. Simpson, has every department in excellent order."

— WE have received a copy of the Official Guide to the COLLECTION OF TIMBERS IN THE MUSEUMS OF ECONOMIC BOTANY, ROYAL GARDENS, KEW, which forms the third of the series being issued from this establishment. It comprises eighty pages of closely printed matter, giving many interesting particulars concerning the principal home and foreign timbers employed in commerce, with brief descriptions of the dimensions the trees attain, their uses, general character of the wood, local and scientific names. Accompanying the guide is an excellent route map of the Royal Gardens, mounted on linen and coloured. This and the guide are sold separately at the nominal price of 2d. each.

— As an example of the style adopted in the above-mentioned Guide, we extract the following note on the TEAK, TECTONA GRANDIS. "A large tree of India, Java, Sumatra, and the Malay Islands. It is the chief timber of India and Burma, and is largely exported for ship-building and railway carriages. In India it is used for similar purposes, as well as for bridges, sleepers, furniture, &c. Teak is very durable, and when once properly seasoned does not split or warp. It is said not to suffer when in contact with iron, and is rarely, if ever, attacked by white ants. This durability is said to be due to the presence of an aromatic oil, which is extracted from the wood in Burmah, and is used medicinally as a substitute for linseed oil and as a varnish."

— A COMMON but pretty plant for shrubbery or other shaded borders is ANEMONE NEMOROSA, the Wood Anemone, with its double white and other varieties. They are now flowering freely, and have a charming appearance dotted about amongst the shrubs in company with Corydalis bulbosa, Primroses, and Violets. If cut with a good length of stalk below the leaves the Wood Anemones last well in water arranged with other flowers.

— MR. J. WYATT, The Gardens, Bradenhurst, Caterham Valley,



sends us an extremely fine sample of MUSHROOMS, which he observes were "from a bed that has come into bearing very quickly. It was made underneath the stage of a warm greenhouse, spawned on March 17th with spawn I found in an exhausted hotbed. I gathered the first dish on April 14th, and at the present time the bed is almost covered with Mushrooms. I also send one of a very curious growth, which I thought might interest you."

— F. J. states that "QUEEN WASPS are very numerous this spring. Fifty-one were killed to-day and five yesterday, several more escaped. All of them were killed among the Gooseberry trees, which are now in flower."

— GARDENING APPOINTMENTS.—Mr. E. Hunt, late foreman to Mr. Milford, Westree Hall Gardens, has been appointed gardener to Rowland Cotton, Esq., Etwall Hall, Derby; and Mr. W. Thorpe of Allestree Hall, gardener to — Samuda, Esq., Shipton Court, Chipping Norton, Oxfordshire.

— ONE of the most beautiful because informal arrangements of plants and flowers we have recently had the pleasure of inspecting is in MR. LARKING'S WINTER GARDEN at The Firs, Lee, Kent. The structure is large enough for the formation of large irregular mounds of soil and undulating borders, and in these Azaleas with other flowering and fine-foliage plants are plunged, forming large free banks, interspersed by twisting gravel paths. The effect produced reminds us somewhat of a Belgian Flower Show in miniature, and it far excels any arrangement that can be produced in straight lines and on elevated stages. Particularly fine near the margins of the borders are several plants of *Primula obconica*; these, and in fact everything else in the structure, afford sufficient evidence of the cultural skill and taste displayed by the gardener, Mr. T. W. Sanders. If we mistake not, a useful lesson in Vine pruning will be afforded at The Firs during the current season, a full crop of Grapes succeeding a light one on very old Vines by a change in the system of pruning.

— DENDROBIUM NOBILE.—Mr. C. Prinsep sends us the following note with specimens referred to:—"Herewith I send you two growths of *D. nobile* taken from the plants I had in London last year, by which you will be able to judge how much the plants have deteriorated. You will notice that the longest pseudo-bulb has flowered from fifteen nodes; from fourteen of the nodes each raceme contains three flowers, the other one has four blooms on it, making in all forty-six flowers on the one growth. The other growth you will notice has nearly all four flowers on a raceme, and no raceme with less than three flowers on. One of the growths had five flowers on a raceme, which is the largest number I have seen of *D. nobile*. Having had to cut some hundreds of flowers of *D. nobile* this last three weeks to send away, I find cutting the growths with the flowers on them to be far preferable to those that have no growths attached to them. I send a spike of bloom of *D. densiflorum* taken from a growth made last year which had two such spikes on." The specimens received are splendid. We have seen none that surpassed them, and few equal in merit from either pruned or unpruned plants. They represent, not deterioration, but invigoration, for they excel those produced by the plants last year.

— THE "American Gardeners' Monthly" has the following on "UTILISING THE EARTH'S HEAT.—Natural gas has been utilised, and there seems some chance to heat our greenhouses by natural heat. It is now tolerably certain that instead of fifty miles, the molten portion of the earth may be reached at ten. At Pesch in Hungary, a bore 951 metres finds the water 161°. In some of our Colorado mines taken horizontally into the mountain sides the heat is so unbearable that men can scarcely work."

— FRESH ANTIPODEAN FRUIT FOR THE LONDON MARKET.—The experiment of shipping fresh fruits to the English market is likely to be thoroughly tested during the Indian and Colonial Exhibition to be opened in London in May next. By request of the Victorian Commissioners the whole arrangements for securing and shipping the fruit have been undertaken by the Royal Horticultural Society, and in response to a circular sent out the growers have sent in some very fine samples. The first shipment left by the "John Elder" a fortnight ago, and comprised over eighty cases, including Apples, Pears, and Grapes. The second shipment leaves to-day per steamer "Austral," and will consist of over 200 cases of Apples, Grapes, Filberts, Pears, and Tomatoes. All parts of

the Colony will be represented in these collections, as Gippsland, Goulburn Valley, Warrnambool, Sandhurst, Echuca, Yan Yean, and districts round Melbourne have responded in a liberal manner. One grower alone has forwarded seventy cases of Apples and Pears. Every care has been taken in picking and packing the fruit. Mr. C. Neilson, the Curator of the Royal Horticultural Society's Gardens, Richmond, personally superintends each shipment, and any grower desirous of full information will be supplied on application to him. The whole cost of freight, &c., is borne by the Indian and Colonial Exhibition. The fruit is exhibited in the name of the growers, and sold in London on their account. The next shipment will leave per "Cuzco" on April 2nd, to be followed by four other collections of about four tons each.—(*Melbourne Age*.)

#### SPRING TREATMENT OF MAIDENHAIR FERNS.

THERE are few Ferns more generally grown than the Maidenhair, *Adiantum cuneatum*. It is one of the first to be selected by anyone beginning to grow plants in a glass house. In large gardens it is grown by the score, and those who have no garden, but make the most of their windows, always try to grow the Maidenhair. Two or three years ago in taking some plants to a charitable bazaar, I found that the Maidenhair Ferns were the greatest in demand; they were sold first and realised double the money of any other plants, but it is not surprising that they should be such favourites, as they are so beautiful and delicate in form, pleasing in colour, and above all useful for all kinds of decorations.

Those who have grown them well for years and know their value and treatment, need not read this note, but I find many who have only begun their culture and others who never fully understood it have much difficulty in knowing how to treat them in spring. As a rule they become shabby in autumn or by midwinter, and if not properly treated traces of this may remain throughout the whole of the following season. When the old fronds become brown many are afraid to do anything to them, as they are afraid they might kill the plant, and when they remain the young growths spring up between in summer. They are rendered unsightly by a withered undergrowth, but to allow the old fronds to remain is not the best mode of treating them, and no one can do better early in the season than cut every particle of top off their Maidenhair Ferns, and allow them to break into new growth altogether. They should be kept rather dry at the root some time before the operation, and the old fronds and stems should be cut in as close as possible to the crown. If watered after this and placed in a gentle heat a multitude of young fronds will soon appear. There is no better mode of securing a beautiful Maidenhair Fern than by submitting it without mercy to this treatment, and if every one of them were subjected to the cutting-over process annually none but fresh green plants would be seen anywhere.

Some may be inclined to think that this annual cutting would prevent the plants becoming rapidly large, but it does not, as it is not a quantity of half-decayed fronds which forms a fine plant, but the size and vigour of the crown and roots, and the winter cutting does not disturb either of these. Respecting potting the Maidenhair Ferns, I do not approve of repotting annually, and if the pots are of a fair size and the roots in good condition, repotting should not be attempted oftener than every other year.

Root-bound plants are greatly benefited by copious supplies of liquid manure in summer, and we would rather deal with a plant of this sort than with a small plant in a large pot, and with a large quantity of soil in it not possessed by the roots. We have found the best time to pot is not when cutting over is done, but some weeks afterwards, and when the young fronds are about 2 inches long. If carefully repotted then they will push on freely; but we have found plants repotted at the same time as they were cut over often very shy in starting into growth. The best material we have ever used for potting consisted of rough fibrous loam mixed with a small quantity of horse droppings and silver sand. Perfect drainage is absolutely necessary to their successful culture.—J. MUIR, *Margam*.

#### THE NEW ZEALAND FORGET-ME-NOT.

QUITE a sensation was caused at the meeting of the Royal Horticultural Society on April 13th, when E. G. Loder, Esq., Floore, Weedon, Northamptonshire, exhibited a group of the remarkable New Zealand Forget-me-not, *Myosotidium nobile*. Many of those present were familiar with the plant, and some had tried their skill in inducing it to flower, but very few have been able to record a success in this respect, although it is not difficult of culture so far as keeping the plant in health is concerned. To what this shyness is due it is difficult to determine. The family to which it belongs includes a number of the most floriferous of our hardy plants, and from the vigorous habit of the plant we should expect an equally free-flowering character. It is probably due, however, to some local circumstances in its natural habitat with which we are not familiar, or to some inherent peculiarity of the plant that is not yet understood. Since Mr. Goldsmith has succeeded in flowering the plant so well this season we shall look with interest for another season; and if he is equally successful, then it may be concluded that he has discovered the secret which has puzzled so many.



The system adopted at present is simple in the extreme. The plants are grown in a compost of loam and leaf soil with one-third horse-droppings and a plentiful admixture of sand to render the soil porous, for though water has to be supplied liberally the slightest approach to stagnation about the roots must be carefully avoided. A cold frame is found to be the best situation where ventilation can be given freely in fine weather, but where also adequate protection from frost can be afforded. The plants start into growth quickly in the early spring, and the leaves advance rapidly, the flowers this season having commenced showing at the commencement of April, and at the meeting on the 13th, when exhibited, they were fully expanded on the majority.

cyme. The corollas are about half an inch in diameter, of a brilliant blue colour in the centre shading to white at the margin, and much like the common Forget-me-not in shape. They have a delicacy of beauty that is very attractive, and when once it is found that the plant can be flowered easily and constantly it is certain to become a great favourite.

#### SEASONABLE HINTS ON SOME GREENHOUSE PLANTS.

EARLY April is a very busy time in these structures, as, besides the general cleaning to which the houses and plants should be subjected, there is much potting attention.

*Greenhouse Hardwooded Plants.*—Before potting or interfering with



Fig. 63.—THE NEW ZEALAND FORGET-ME-NOT—MYOSOTIDIUM NOBILE.

*Myosotidium nobile* was first introduced to this country through Mr. Watson of St. Albans, and plants were exhibited in flower at one of the London Horticultural Society's meetings in March 1858. The plant is a native of the Chatham Isles, near New Zealand, and is botanically notable as presenting a combination of the characters of several genera in the Borage family, its chief resemblance being to *Myosotis* and *Cynoglossum*; it was, indeed, first assigned to the last-named genus, but was subsequently separated under the name it now bears. The leaves are heart-shaped, 8 to 10 inches in diameter, of a bright shining green colour with deep veins, and they have been compared to the young leaves of Cabbages, to which they possess some resemblance, but the green shade is darker and brighter. The flowers are produced in an inflorescence somewhat like that of the *Myosotis*, and is termed a scorpioid raceme or

the plants for that purpose it is important that the ball be properly moist, for if dry when shifted it is next to impossible to get it thoroughly moistened afterwards; or if that be effected the fresh soil is saturated. The roots of the most delicate hair-like character do not take to it kindly, the soil being sodden and sour before the roots penetrate it, whereas if the fresh soil is not wetted after potting the roots take to it at once, and the plants start into free growth. The peat when used ought not to be dry, but it must be in a medium state of moisture, so that when pressed firmly it will feel clean and elastic in the hand. The plants must be watered overnight, so that the water will have had time to drain away, and in this state the pot will come away clean from the soil, the potsherds being removed with greater facility. If these are very much matted with roots it will be better to leave them than destroy a majority of the best roots in doing so. Only loose inert soil should be removed from the sides and surface, there not being any attempt at loosening the ball. Drain well, and use clean potsherds as well as pots. Ram the soil tightly around the



old ball, and if done properly it will appear as forming part of the ball itself, preventing the too rapid percolation of water with the inner part getting its due share. For all hardwooded plants it is advisable to tear the peat up with the hands, removing all woody matters and assort it, taking out the finer portions or earthy matter by means of a fine sieve, using the best and most fibry parts, to which should be added a sixth of coarse white sand. Plants of this character should be kept rather warmer than usual after potting, sprinkling lightly at closing time on fine afternoons.

*Cytisuses and Coronillas*.—Cut these back to an inch or so from the wood of the previous year, and remove any portions of weak and dead wood, and after laying the plants on their sides syringe with soft-soap solution 3 ozs. to the gallon of tepid water over a vessel to catch the solution, and turn the plants round so as to wet them thoroughly in every part. This will cleanse them of red spider. Keep them rather dry at the roots and in an atmosphere likely to insure a good break, or a moist, warm, genial atmosphere, and when they have made an inch or so of growth repot them. Under favourable conditions they will have made sufficient growth for standing outdoors by the end of June, where they will harden a bushy floriferous growth. *Cytisuses* are very useful for early spring flowering, and are fragrant, being bright and effective plants of easy culture.

*Culecolarias*.—Keep a sharp look out on these for aphides. Once let them get ahead and the plants are ruined, as to free them considerable injury is done the foliage. Upon the first appearance of these pests fumigate lightly in dull weather for two or three nights in succession. A cold frame or pit on a bed of ashes suits them best at this season, damping them lightly over just before closing in the afternoon, which will assist in preserving the foliage fresh, and with the liquid manure that should be given frequently but not too strong it will retain its pleasing green colour which is so effective an accompaniment of the flowers.

*Cinerarias*.—The strains of these are so good that it is seldom worth while to raise them in any other way than from seed. There are, however, some that attain such extraordinary fine proportions in size, colour, &c., that perpetuation is desired, which may be done and good plants obtained by encouraging a free growth of the suckers which emerge from the base of the old plants as soon as they have flowered; but I find these side shoots or suckers start more readily if the plants are turned out and repotted, or plunged in leaf soil at a depth sufficient to partly bury the crown, when the side shoots will form roots quickly, especially if the frame in which they are placed be shaded and the interior kept moist by frequent syringings. By this means the double varieties which are so exceedingly beautiful and useful for general decorative purposes can be propagated.

*Primulas*.—Useful as are the single and semi-double varieties that are raised from seed I consider the doubles extremely serviceable for cutting and general decorative usefulness as to render them of especial value, particularly the old alba plena and rubra plena. Marchioness of Exeter, White Lady, Mrs. A. F. Barron, and Earl of Beaconsfield are most creditable to their raiser, Mr. R. Gilbert. Other fine ones are Emperor, Princess of Wales, Annie Hillier, Miss Eva Fish, Mrs. Eyre Crabbe, and King of Purples. These having really double flowers can only be increased by cuttings, or rather divisions of the old plants, and to succeed with them it is necessary to keep the plants a little dry some time previous to detaching them, that they may become a little hardened and the sap reduced, otherwise they are liable to decay when severed. It is a capital plan to cut each division half through on one side about this time, and as low on the stem as possible, and then cover the surface of the pots with some pounded charcoal. This will arrest the sap, and roots, or a callus at least, will be formed, especially if in a fortnight after making the first incision it be repeated on the opposite side a little higher up the stem, being careful not to detach it, adding more charcoal so as to make it cover the second incision. In about six weeks, or by the early part of June, the parts so acted on will have rooted, and should be detached and potted. If not rooted they should be treated like cuttings, getting as much of the base with each as possible, which should be trimmed and freed of the loose parts, and each cutting then inserted in separate pots in sharp sandy soil and stood in a warm house under a handlight with a piece of wood about an inch high under the corners, duly shaded and kept from flagging by an occasional bedewing overhead, but not heavy enough to run into the hearts of the cuttings, a wet condition of the soil being guarded against until the wounds are healed. In the course of three weeks the cuttings will have roots, when they should be gradually hardened.—G. ABBEY.

#### KEENS' SEEDLING STRAWBERRY.

I CAN fully corroborate Mr. Goodacre's remarks at page 268 of the Journal as to the merits of 5-inch pots over 6-inch for early Strawberries. We invariably use that size, and generally with a fair amount of success. While writing permit me also to mention the merits of the old Keens' Seedling Strawberry for forcing purposes. I do not do so in the sense of writing to depreciate the Vicomtesse Hericart de Thury, of which variety we force a quantity, still I always find that Keens' is preferred at the table to any other early variety. It is necessary to mention one thing about Keens'—viz., that on some soils it has a tendency to run out, so to speak, in the shape of a number of plants becoming fruitless. On our moist limestone soil we find it never does this, remaining as fruitful as Hericart, which, it is well known, is one of the most fruitful Straw-

berries in cultivation. I enclose you a few fruits of Keens'—a fair sample of what we have been picking since the 23rd of February.—H. J. C.

[The Strawberries which we received on April 14th were very fine indeed, and with the true Keens' Seedling flavour.]

#### ROYAL HORTICULTURAL SOCIETY.—APRIL 27TH.

DAFFODILS were again in the ascendant at South Kensington on Tuesday; and the Committee of specialists who have taken these plants under their particular care were busy in correcting their names and selecting the best of the novelties for certificates. Hardy flowers, a few Orchids, Messrs. Veitch & Sons' brilliant Amaryllises, Messrs. Paul and Son's beautiful Roses in pots, and Messrs. Cutbush & Sons' greenhouse plants, with some smaller groups constituted the principal of the other exhibits.

FRUIT COMMITTEE.—Present: H. J. Veitch, Esq., in the chair; and Messrs. J. Willard, W. Denning, G. T. Miles, James Smith, G. Normau, G. Buyard, S. Ford, John Burnett, and Philip Crowley.

Samples of the Newland Sack Apple were shown by Mr. W. Crump, Madresfield Court Gardens, Malvern. It is not a new variety, but is little known beyond the Malvern district. Mr. Crump writes as follows concerning it, "The best and largest of our late-keeping varieties, a certain cropper, habit and constitution good, flowering late, colour of the flower deep pink, and exceedingly handsome when in flower." The fruits shown were of medium size, firm, and of good flavour for such a late period in the season; and the Committee expressed a high opinion of the variety. It is thus referred to in the last edition of the "Fruit Manual." "This is a Worcestershire orchard fruit, highly appreciated and extensively grown at Newland, near Malvern, and the surrounding villages. It keeps well, does not bruise in travelling, or if bruised it will not decay. It is a great favourite with Mr. Baron Webster at the fruit farm of Newland Court, who says he wishes all his orchards were Newland Sacks and Blenheim Pippin." A letter of thanks was directed to be sent to Mr. Crump. Messrs. J. Carter & Co., High Holborn, showed a long red Radish of American origin and named Kuickerbocker. The roots were very large, but were said to be of good quality, and it was referred to Chiswick for trial.

FLORAL COMMITTEE.—Present: G. F. Wilson, Esq., in the chair; and Messrs. W. Wilks, J. Douglas, W. Bealby, G. Duffield, H. Herbst, Shirley Hibberd, Richard Dean, Thomas Baines, G. Paul, John Dominy, H. M. Pollett, James O'Brien, H. Ballantine, W. B. Kellock, E. Hill, H. J. Lendy, and Dr. M. T. Masters. Messrs. J. Veitch & Sons, Chelsea, exhibited a collection of new Amaryllises, King of the Crimsoms, Duchess of Edinburgh, and Duchess of Albany being certificated; the first named was the richest coloured variety yet obtained and was greatly admired. Others represented were Mrs. Whithourne, veined with crimson on a white ground, and Eclatante striped and veined with rose and edged with white. Mr. S. Ford, Leonardslee Gardens, Hcrsham, sent branches of *Wellingtonia gigantea* bearing numerous cones (vote of thanks). Messrs. T. Cripps & Son, Tunbridge Wells, were also awarded a vote of thanks for a plant of *Cattleya Lawrenceana* with fourteen fine flowers of rich colour. Messrs. Krelage and Son, Haarlem, sent a collection of seedlings of *Fritillaria Meleagris*, differing slightly in colour, and four were selected for certificates. M. Linden, Ghent, sent a plant of a variety of *Cattleya* with large handsome crimson flowers, the lip broad with dark veins. A specimen of a new and very distinct *Dendrobium* named *stratiotes* was also shown; it had narrow twisted greenish petals about 2 inches long, the sepals much shorter, broader, and creamy white, the lip spurred at the base, white veined with rose. A plant of *Alocasia Lindenii* came from the same nursery, the leaves heart-shaped, green, with yellowish veins; and Mr. Gilbert, Florist, Dyke Bourne, Lincoln, showed some very fine and brilliant double scarlet Anemones.

Mr. G. Bethell, gardener to the Duke of Marlborough, Blenheim Palace, was awarded a cultural commendation for *Epidendrum leucocochilum* nearly 3 feet in diameter and bearing about sixty flowers, the sepals and petals of which are narrow yellowish, the lip three-lobed, and with the column pure white. Major Lendy had several Orchids, for two of which he gained certificates, and the others were varieties of *Odontoglossums*.

The groups from nurserymen occupied the greater portion of the space in the conservatory. Messrs. W. Cutbush & Sons, Highgate, contributed an attractive group of greenhouse plants in flower, some of the most notable being the *Ericas*, the white *Choysia ternata*, several *Eriostemons*, the graceful *Tetratheca verticillata*, *Polygala Dalmatiana*, a useful free-flowering plant; the interesting and pretty hardwooded plant *Hypocalymna robusta*, with its soft rosy flowers, *Genetyllis fuchsoides*, and other plants of a similar kind that are too seldom seen either in gardens or at exhibitions. A silver medal was awarded. Mr. G. Stevens, Putney, sent a large group of Abutilons, representing a number of bright and soft-tinted varieties like those which Mr. George has shown in previous years. Some of the best were the following:—*Vesuvius*, scarlet and bright red; *Vivid*, *Compactum*, *Brilliant*, *Excellent*, and *Lustrous*; crimson, *King of Crimsoms*, buff with crimson veins, *Mrs. Stevens*; pale salmon, *Mrs. Garfield*; pink, *Pink Pearl* (vote of thanks); orange, *Golden Queen*; white, *Boule de Neige*; yellow, *Cloth of Gold*; and orange buff, *Miss Terry*. Mr. J. Walker, Thame, Oxon, exhibited five boxes of cut Roses, very fresh and sweet; four dozen blooms of *Maréchal Niel* were extremely good. *Niphetos*, *Duchesse de Caylus*, *Cheshunt Hybrid*, *Lamarque*, *Gloire de Dijon*, and *Souvenir d'un Ami* were other good varieties. Messrs. Paul & Son, Cheshunt, had a choice group of hardy flowers, large specimens of the bright yellow *Doronicum austriacum*, *Megasea cordifolia purpurea*, and *Dielytra eximia* being very showy. Several Saxifrages, the bright blue *Gentiana verna*, and the bright scarlet *Anemone fulgens* were also notable. The double white or pale blush Pigmy Rose, *Anemoneflora* was included in the group with some pretty Primulas, *Fritillarias*, and the white double Wood Anemone, *A. nemorosa bracteata fl. pl.* From the same firm came a magnificent group of Roses in pots, standards and dwarfs from 3 to 5 feet high, very healthy, and representing varieties which we have previously noted. They were in all respects excellent plants, and it is quite refreshing to see such Roses at exhibitions. A silver-gilt Banksian medal was awarded for the group.

An exceedingly tasteful group of Ferns was shown by Mr. H. B. May, Edmonton, and they afforded a most agreeable change from the rather too



abundant yellow tints of the Daffodils. The plants were mostly small, but were very healthy, arranged in ornamental pots and earthenware rustic baskets, the chief useful Pterises and Aspleniums being noteworthy—*Adiantum Pacottii*, a very compact and useful Fern; the dark *Pteris internata*, *P. serrulata*, *P. cretica*, the exquisite *Cheilanthes elegans*, and numberless others. The group well merited something more than the bronze medal awarded for it. Mr. T. S. Ware, Tottenham, had a bright and beautiful collection of the most effective hardy plants, *Primula Sieboldi* and its varieties with *P. rosea* predominating. Anemones of the fulgens, appennina, and nemorosa types were attractive. A pan of *A. Robinsoniana*, a very fine variety of nemorosa with large pale lilac flowers, was one of the best plants exhibited, the colour being a very delicate one, but it occasionally comes with more of a blue tinge. An extensive collection of the leading varieties of Daffodils in each section was also shown by Mr. Ware, and a silver-gilt medal was awarded for the two groups. Similar honours were accorded to Messrs. Barr & Son, King Street, Covent Garden, for a charming group of Daffodils in numerous select varieties. Silver medals were also awarded to Mr. J. Walker, Whitton, for a superb collection of Daffodils admirably grown and tastefully arranged; and to Messrs. Collins Bros. & Gabriel, Waterloo Road, for a good group of the same kind of flowers. Mr. R. Dean, Ranelagh Road, Ealing, had a small group of Primroses and Polyanthus representing several very rich and pleasing colours.

#### CERTIFICATED PLANTS.

First-class certificates were awarded for the following:—

*Pteris cretica* H. B. May (H. B. May, Edmonton).—A variety of albineata, very sturdy and compact in growth, the fronds slightly forked at the ends. It will be a useful decorative plant owing to its dwarf habit and hardy constitution.

*Cattleya Mendeli* Lendyana (Major Lendy).—A grand variety with broad bluish petals, a very long lip, white, gold in the throat and intensely rich crimson at the tip.

*Odontoglossum luteo-purpureum leucoglossum* (Sander & Co.).—A beautiful form with large flowers, the sepals and petals rich brown marbled with yellow at the base, the lip broad, brown in the centre and pale yellow, nearly white at the tip, which is slightly fringed.

*Cypripedium Hyeanum* (R. B. White, Esq., and M. Linden, Ghent).—A distinct form, the flowers more curious than beautiful, the lip bright green, the dorsal sepal white with green stripes. M. Linden's plant was said to be a hybrid from *C. Lawrencianum* and *C. insigne*, but the Committee expressed considerable doubt respecting the reputed origin.

*Amaryllis King of the Crimson* (J. Veitch & Sons).—A flower of medium size, but of wonderful colour, a deep scarlet running to the centre. It is the richest coloured *Amaryllis* yet obtained.

*Amaryllis Duchess of Edinburgh* (J. Veitch & Sons).—Flower round, with broad even petals, white veined with rosy crimson. Very attractive.

*Amaryllis Duchess of Albany* (J. Veitch & Sons).—A finely formed flower, the petals round, broad, and even in size, crimson with a white centre.

*Beaumontia grandiflora* (R. Ruffett, Panshanger).—A handsome shrub, bearing very large trumpet-shaped white flowers, resembling those of the *Brugmansia suaveolens*, but the *Beaumontia* belongs to a different natural order, the Apocynaceae. The leaves are elliptical, 6 to 8 inches long and 3 broad, somewhat like those of *Luculia gratissima*; they are borne in axillary clusters near the points of the growths, the corollas being 6 inches long and 4 inches broad, with five round lobes, pure white and fragrant. It is by no means a novelty, and has been cultivated in stoves for some years, but we believe the plant from which these flowers were sent is trained to the back wall of a conservatory.

*Seedling Fritillarias* (Krelage & Son).—Four varieties were certificated, but they were neither so distinct nor so beautiful as many we have seen. *E. H. Krelage* has a deep red chequering, *Corneille* is purplish, *Van Lerios* greenish, and *Siege of Haarlem* yellowish.

*Oncidium undulatum* (Major Lendy).—A large-flowered species bearing a long straggling raceme, the sepals dark dull green, the petals barred with a similar colour on a white ground, and the lip of a curious pale purplish hue.

*Rose Gloire Lyonnaise* (Paul & Son, Cheshunt).—A Hybrid Perpetual with white blooms, or slightly tinged with sulphur in the centre; the petals shell-like, recurved at the edge, very neat in the bud, but rather loose when partly expanded.

*Polyanthus Jack-in-the-Green Crimson Beauty* (R. Dean, Ealing).—A pretty variety with a large foliaceous calyx and rich crimson corollas.

*Narcissus Nelsoni aurantius* (T. S. Ware).—A charming variety with white perianth divisions, the crown small, very neat, light orange fading to yellow at the base.

*Narcissus Henry Irving* (T. S. Ware).—One of the large-crown forms, of fine shape, the corona of a rich gold tint and yellow perianth divisions.

*Narcissus Leedsii Duchess of Westminster* (Barr & Son).—Perianth divisions white, corona pale clear lemon stained with orange.

*Narcissus Leedsii C. J. Backhouse* (Barr & Son).—Another of the same type as the above, with yellow perianth divisions and a rich orange corona.

#### SCIENTIFIC COMMITTEE.

R. McLachlan, Esq., in the chair; Messrs. W. G. Smith, Michael, Pascoe, Smee, Ridley, O'Brien, G. Murray, G. F. Wilson, Dr. Masters.

*Isosoma*.—Mr. McLachlan, referring to this subject, repeated his doubts as to whether this insect was really the gall-producer on the roots of *Cattleya*, as he had bred a *Cecidomya* from the galls—a much more likely insect to have effected the mischief. Mr. O'Brien, on the contrary, had no doubt that the *Cecidomya* was the cause of the mischief.

*Peziza on Anemones*.—Mr. W. G. Smith exhibited specimens of this fungus attacking the rhizomes of *Anemone nemorosa*. It was suggested that the roots had previously decayed. Mr. Smith also showed the *Puccinia* on *Adoxa moschatellina*; the fungus, it appears, persists during winter on the roots. Mr. Smith had also infected seeds, with the result that the seedling plants were also affected.

*Beetroot*.—Mr. Smee showed a Beetroot which had developed itself under a stone, apparently without leaves. The subject was referred to Mr. Ridley to examine and report.

*Growth on Passiflora*.—Dr. Masters exhibited a specimen with a singular outgrowth, such as is frequently seen in Vines and other plants, but the

cause for which is not known. The specimen was referred to Mr. Michael for examination and report.

*Rhododendron niveum*.—Mr. Bateman exhibited a specimen of this species in flower from his garden at Worthing, where "this and other species appear to succeed perfectly in a north aspect and under cover of some 20 feet of nearly perpendicular rockwork, which affords effectual protection from sea breezes and the rays of the sun." The flowers were relatively small and of a dull lilac colour. The under surface of the leaves is covered with cream-coloured down.

*Australian Acacias*.—Mr. Bateman also sent for exhibition specimens of *Acacia verticillata* in bloom, and which had had no protection other than that afforded by a south wall. Flowers of *A. undulata* and *A. ligustrina* were also shown, which had been grown without fire heat in a glazed porch.

*Portuguese Narcissi*.—Dr. Masters exhibited specimens and drawings of certain Portuguese Narcissi from Prof. Henriques and Mr. Tait of Oporto. They comprised forms of *N. triandrus*, showing great variability in the relative lengths of the stamens and style, and of the form called *N. Henriquesii*, in which the perianth-tube was reduced to a minimum.

*Auricula*.—Dr. Masters showed for the Rev. F. D. Horner a flower of *Auricula* with a dark red ground and a green edge; a form mentioned in his paper read before the Primula Conference. It was recognised as an entirely new departure, and likely to excite great attention among *Auricula* growers.

*Gladiolus*.—Rev. J. T. Boscawen sent specimens of a *Gladiolus*. Referred to Mr. Ridley.

*Tobacco Culture*.—Colonel Clarke sent a communication on the culture of Tobacco in this country, in which he summarised the principal conclusions as follows:—1, Cultivation of ridges. 2, Removal of all laterals. 3, The earliest harvesting of the crop consistently with a proper ripening of the leaf. 4, The absolutely dry state of the leaf before packing for fermentation. Dr. Masters alluded to the culture of the plant in Belgium and Northern France and to the analyses published by Boussingault.

*Marshall P. Wilder*.—It was resolved on the motion of Dr. Masters that a letter of thanks be sent to this gentleman for his contribution to the library, and that the opportunity should be seized to congratulate the venerable President on the continuance of his useful labours in the promotion of all branches of cultural science.

*Orchid Nomenclature*.—In consequence of a communication from the Council it was resolved that a sub-committee be formed to co-operate "with the Society's Provincial Show Committee with a view to the holding of a conference on the nomenclature of Orchids during the Show to be held at Liverpool." The following gentlemen were selected from the Scientific Committee for the above purpose:—Sir J. D. Hooker, Messrs. Ridley, J. O'Brien, and A. H. Smee. It was suggested that Mr. Harry Veitch should be requested to form one of the Committee.

*Miscellaneous*.—Mr. Wilson showed flowers of *Menziesia empetriflora*, *Epigaea repens*, and *Rhododendron multiflorum*. Flowers of *Beaumontia grandiflora* were shown from Lord Cowper's garden at Panshanger.

#### AURICULAS AT SOUTH KENSINGTON.

IT was certainly much to be deplored that in a year when the whole genus of the Primulas was brought so prominently into notice, that the flower on which the whole Exhibition hung should have been exhibited under such unfavourable conditions, for not for some years has the Show of the National Auricula Society been so small, or, I may add, so mediocre in quality. This will occasion no surprise to anyone who has ever grown an Auricula and noticed the climatic influences that have been at work. A severe winter does not, as far as my experience, try the Auricula, but it is not that which we had to deplore so much, as that at the period when it ought to be starting into good growth and flower—viz., at the end of January, we had, from that on through February and March, a succession of cold dreary weather without any sun, and with a low temperature, and the Auriculas hardly moved. The hopes of growers revived when, early in the present month, the weather changed and the wind blew from the south. Under their influence the appearance of the plants wonderfully changed, and there was a hope that after all they might come in in time; but this hope was short-lived, the wind backed again to the N.E., the plants became almost stationary again, and it became evident that only those who could give the plants fire heat could come to the front, and the result fully justified these forebodings. In the larger classes but two competitors appeared, Mr. Douglas and Mr. C. Turner, and they divided the honours between them. Northern growers, who generally so largely contribute to the success of the Show, were almost unrepresented. Mr. Horner, the champion grower, was absent, and so was Mr. B. Simonite. Mr. Brocklebank was represented, Mr. Pohlman was only there as judge, not as an exhibitor, Mr. Bolton had but a few plants, and indeed a comparison of the number of entries with those of last year will show how great was the falling. In the class for fifty Auriculas there were, as I have said, only two exhibits instead of four. The same was the case in the class for twelve. In that for six there were only four, as compared with six or seven last year. In the smaller classes the difference would not be so marked. These larger collections had all been grown under the influence of heat; indeed Mr. Turner told me that his had had fire heat night and day ever since Christmas, and as a result many of the stalks supporting the truss were spindly and required stakes to support them.

So far as to quantity. I fear my verdict (taking it for what it is worth) must be that the quality of those exhibited was by no means equal to that of former years. This must also be attributed to the season. When flowers are long in opening, and when they fail in obtaining the sunlight in which they rejoice, it must be that they suffer from it, and I saw flowers that obtained prizes on Tuesday which would have been simply nowhere in other years. The sorts were the same. There was no lack of "cracks," but they were not in their usual form, and even such flowers as George Lightbody and Lancashire Hero would have been re



garded in a good year as not up to the mark. Perhaps my ideas are considered antiquated and pertaining too much to the "old fogey" character, but after all I may be right.

Taking the two collections exhibited for the class of twelves, there were in Mr. Douglas's lot the following:—Verdure, a seedling of his own, with a very pure green edge, but with somewhat too much body colour, giving it rather a coarse appearance; Prince of Greens, a fine truss, with perhaps a trifle too much colour—what a pity that this lovely green edge has so pale a tube, with a yellow one it would be a great beauty; Colonel Taylor, a little rough; Conservative, a very sweet flower of the Smiling Beauty style; Mabel, a seedling green; Charles J. Perry, large truss and fine; George Lightbody, good; and Smiling Beauty in good form. Amongst Mr. Turner's twelve were Lady Sophia Dumaresque (Lightbody), a white edge rarely seen, rather angular but a very showy flower; George Lightbody; Prince Henry, a seedling, not likely to take a first prize. There were amongst the six in Mr. Douglas's lot Abbe Liszt, a very good green edge, the green particularly bright and clear, its defect being too large an eye; George Lightbody, good; Prince of Greens, rather straggling truss, a defect which this fine flower is sometimes prone to. In Mr. Turner's were George Lightbody, neat and clean; Charles Edward Brown, good, a flower that very often comes near to George Lightbody; Traill's Beauty, in good form. Mr. Llewelyn was third with his seedling Greyfriar, rather rough and too much body colour; Acme, good decided white edge; Alderman Wisby, somewhat large.

The class for fifties was of the usual character, some very good flowers and some very indifferent ones. In Mr. Douglas's collection were Dr. Kidd, a seedling; Sapphire, very bright, but I failed to distinguish much difference between it and Charles J. Perry. Frank Simonite would be a fine flower were it not for its pale washy tube; it seems almost impassible. Conservative good, Lancashire Hero in its green character, Prince of Greens good, and Garibaldi (Pohlman's) good dark self. In Mr. Turner's collection there was a good truss of John Warliston, which he does better than I have seen it elsewhere. Confidence, too, large and rough, and Traill's Beauty, good—this flower is very uncertain, sometimes meriting its name, at other times more like the Beast than the Beauty. A very good bloom of John Simonite, a good white edge, was shown by Mr. Potts in the "single" class. Geo. Lightbody took first in greens, but I, as an old florist, should not have called it a green edge, as there was a considerable quantity of the "powder;" daisies, I think Mr. Horner calls it, like Daisies in a green lawn, and it was nearer a grey than a green. Acme came in well in the white edges, and is perhaps the most decided white edge we have. There was a very good plant of Traill's Beauty which took the fifth prize. Amongst these there was a good plant of Black Ben, exhibited by Mr. Bolton, one of Mr. Woodhead's seedlings.

In seedlings there was but little competition, and few prizes were awarded. This is as it should be when the varieties exhibited are not superior or equal to those already grown; for although a prize does not quite give the same position as a certificate, yet it gives a certain value to a flower, and if it is not meritorious may afterwards cause disappointment. Amongst the green edges there was nothing worthy of note. Amongst greys, Mr. Llewelyn had a second prize for a grey edge of medium quality. In whites, Mr. Douglas had a good white edge Snowdon Knight, apparently of the same strain as his Conservative and Sylvia, a good white edge with dark body colour, paste solid and good, and a good yellow tube. There were two good selfs exhibited by Mr. W. Bolton; one, Mrs. W. H. Bolton, a very deep maroon, nearly black, and with a good paste and eye; the other, Mrs. Wilson, a large-sized pip of deep purple. The premier prize in the Show was, as usual, awarded to George Lightbody, a fine truss already alluded to in Mr. Douglas's collection of twelve. It shows how difficult it is, with all the efforts of raisers, to gain anything which surpasses that grand flower. Let us hope that another season may be more favourable. Evidently the growers of the flowers are increasing in number, and we hope that they may have a better opportunity of competing.—D., Deal.

### THE DAFFODIL.

[A paper by the Rev. C. Wolley Dod, read at the Horticultural Club, April 14th.]

(Continued from page 313.)

I NEXT speak of the characters and geographical distribution of several of the wild forms, and I may first remark that our knowledge of wild forms of Pseudo-Narcissus is increasing rapidly, and that every year new varieties are being added to our list, or the true home of some old garden variety is being discovered. N. Pseudo-Narcissus, as a species, is confined to Europe, and extends from the Atlantic on the west, and the latitude possibly of Edinburgh northwards, to about the longitude of Berlin eastwards. It has been reported as native in Hungary and other parts of the Austrian empire as far east as Transylvania, but Herr Willkomon, Prof. of Botany in the University of Prague, has told me that he does not believe it to be indigenous in those parts. It is unknown in Turkey or Greece. Its head quarters may be considered to be the region of the Pyrenees, and it is most abundant in Southern France, Northern Spain and Portugal, and Northern Italy. Whether it extends quite to the south of these latter countries is uncertain. It is convenient to adopt, as Mr. Baker has done, the five species of Linnaeus as sub-species or sections under which to classify the known wild varieties. These sections are—1, Pseudo-Narcissus; 2, major; 3, minor; 4, bicolor; 5, moschatus.

I say I adopt these divisions of names for convenience, but I cannot say that they are satisfactory, though I have no better to offer. As the number of wild varieties found grows upon us, we find it more and more difficult to adjust them according to these sub-species. All arbitrary defi-

nitions break down. Whether we take colour, or size, or structure, we find from end to end, from the most concolorous to the most bicolorous, from the smallest to the largest, an unbroken series of links, and if we try to make a set of characters to fit particular names, they utterly fail when applied in practice. The minors, the majors, the Pseudo-Narcissus, the bicolors of Portugal, of the Pyrenees, of the Maritime Alps, all differ, and have some characters of one name, and some of another, and I therefore adopt these names, with this proviso, and as having, not only no real limitation as sub-species, but no consistent characters reaching beyond the individual variety we may accept as their type.

As for the first, the Daffodil found wild in England has generally been adopted as the type of the species, and of this section. In Devonshire where it is most abundant, it varies most in size, in substance of flower, in deepness of colour of the corona, and in width and recurving of its mouth. The corona, however, is seldom much recurved in English varieties. A form now known as scoticus is found in Ayrshire, taller and stouter, and with larger flowers than the type, and earlier in flower, and in its recurved corona presenting a beautiful example of crenation. It is improbable that it is indigenous to Scotland.

I must next mention that I know three places in England, one being in Oxfordshire and two in Dorsetshire, where typical Pseudo-Narcissus grow mixed up with concolorous forms, both white and yellow, presenting similar characters to the type. With them grow others resembling the bicolor section. After cultivating these forms and examining them, I believe that they are due to different varieties of foreign origin, planted together by design or accident, the offspring of which are hybrid. The largest development of the section pseudo-Narcissus is found in Italy where varieties called Telamonius and princeps are found in the valleys and lower slopes of the Apennines, the former having the most twisted leaf of any Daffodil I know, and the latter the longest corona, sometimes exceeding 2 inches in length, or more than two and a half times the length of the tube. From the Pyrenees themselves, amongst thousands of Daffodils, I have never received any of exactly the English type, though it may exist there, but the prevailing Pseudo-Narcissus of the lower slopes of the Pyrenees, extending west almost to the sea level near Biarritz, is an elegant very pale early Daffodil, which we have imported under two names, pallidus præcox, and variiformis, the latter name very suitable, as it is a very variable Daffodil both in shades of colour, form of corona, and relative proportions of the parts of the flower. It carries its flowers at nearly every angle to the horizon, and the leaves are distinct in appearance, being hardly at all glaucous. It seems to have been unknown to Haworth, who, in his twenty-nine species of Trumpet or Ajax Daffodil, does not even enumerate any into which it could possibly be made to fit. This Daffodil has scarcely any character which is not inconstant and variable.

The forms included under the second section, major, are mostly concolorous, and of rich yellow. They have often been distinguished as Spanish, but at least one, the spurius of modern gardens, is probably native in Italy, and not yet known to be wild in Spain. The Tenby Daffodil, quite naturalised in South Wales, but of which the true habitat is unknown, belongs to this section. So does that very fine Daffodil, the maximus of gardens, which will probably be found native somewhere either in North Italy or Spain, when the countries have been more closely searched in early spring. The nearest wild approach to this form I have yet seen was exhibited by Mr. Ware last year to the Daffodil Committee. He had received it as collected wild near Saragossa, after which town it has been named. Two or three forms belonging, I believe, to this section were sent to me last summer by Mr. Alfred Tait, who collected them wild near Oporto. They are tall elegant flowers, with slender and much-twisted perianth divisions, not imbricated, and I think are new to cultivation. They may develop more when I have grown them longer. These double readily when planted in Mr. Tait's garden, and the double form is an ugly monster. Major is rather ill defined as a section.

Of the third section, minor, the assumed type, as recognised, I believe, by the Narcissus Committee has only just now been identified in its wild state; but its exact counterpart in all characters except size, N. minimus, is abundant on mountains in the north of Spain. The variety most common in gardens, now called nanus, though I shall presently give reasons for thinking that the name is wrong, abounds near Bayonne, where the French hotanists call it minor; but the recognised minor, with large lobes, and generally with free divisions of perianth, was found in the Maritime Alps recently by Mr. Scrase Dickens near Gasse. Concolorous and bicolorous forms of it grow there not in separate clumps, but mixed up together in the same clumps, and I have had this season two or three boxes of flowers of it sent to study.

Of the bicolor section the characters are—The leaves thick in substance, very broad and large, not acute or tapering, but rounded off suddenly at the ends; it is late-flowering, the corona is cylindrical or ventricose, slightly lobed, and the perianth divisions often large and loose. Two distinct wild forms are well known—1, Lorifolius, which is found in the Pyrenees in North Portugal, and probably in the Apennines; and 2, N. muticus of the French botanist Gay, a very distinct Daffodil, covering hundreds of acres on the French side of the Pyrenees near Gavarnie, and in other parts. It is so distinct in its character that Haworth, though he had never seen living plants, assigned to it a separate genus called Pileus, and divided it into five species. This is the bicolor of some French local botanists, and we do not know yet any wild form which comes nearer the bicolor of gardens, though we may expect to find some. As regards muticus, which is sometimes called abscissus in English catalogues, the large broad leaves with rounded ends, the straight cylindrical corona, its late flowering, and other characters claim for it a place



in this section. It seems strange that so distinct a Daffodil has never been figured in any English work.

The last section, *Moschatus*, or the White Daffodil, is very interesting. The only form of it we yet know for certain in its own home was rediscovered about six years ago by Mr. E. N. Buxton on the Spanish slope of the Pyrenees whilst chamois hunting, about 6000 feet above the sea level, near Mount Perdu. It was in May, and at that elevation the flowers were just out. Mr. Buxton at once laid down his rifle, and supplied himself with roots of this new prize, which were the first wild ones brought to England in recent times. Since then this habitat has become known to French collectors, and many thousands of bulbs have been imported thence to England. It has always been supposed that other and larger forms of this section are to be found wild in Spain, but we do not know for certain that any have yet been found, and we want trustworthy information on this point. A character of this section is that the separation of the perianth divisions is marked by a conspicuous line continued nearly to the bottom of the tube. This completes my short notice of the principal known wild forms, but the list of known wild forms will constantly increase, and is growing from year to year. A very distinct variety was sent to me by Mr. Alfred Tait from Portugal early in last month, but not in sufficiently good condition to describe its character. Another remarkable form of Daffodil was sent by the same gentleman with perianth divisions reflexed so as to meet in a point, and with no tube. It is thought to be identical with the *N. cyclamineus* adopted by Haworth from old authors who figured it. If not a hybrid, it seems to demand a species to itself, for it can hardly find a place amongst *N. Pseudo-Narcissus*.

I have followed Mr. Baker in adopting Haworth's names, though I feel all the while that several of them are misapplied. It seems inconsistent to adopt an author's names when the characters given by that author to the plants he describes under those names are manifestly at variance with the characters of the plants to which we apply them. For instance, Haworth's *N. minor* was a flower with imbricated perianth divisions, whilst we now apply it to a flower of which a distinctive mark is its free perianth divisions, and the same inconsistency applies to *N. minimus*. Again, the *N. nanus* of Haworth was a pale sulphur-coloured Daffodil with leaves half an inch wide. Our *N. nanus* is a full yellow, with leaves narrower than those of *minor*. I am at a loss to know what variety Haworth intended by the name *rugilobus*, which he classes under the section *Pseudo-Narcissus*; but it is now transferred to one belonging evidently to the bicolor section, and identical, so far as I can judge, with *lorifolius*. The same uncertainty attends several others of the names of Haworth in their recent application.

We now pass on to speak of *N. Pseudo-Narcissus* as a cultivated plant, and of the changes and improvements which have taken place or may be expected to take place in its development under cultivation. Some of the finest forms, as *Emperor*, *Empress*, *Horsfieldi*, are believed to be varieties of cultivation, because they are not known to have been found wild, and the names of the growers are known; but whether they were produced by artificial crossing or by careful selection of seed from the finest flowers, and from seedlings raised under the most favourable conditions, we have not certain information, though the latter supposition is more probable. In a species in which so many and distinct natural varieties exist it seems not unreasonable to expect that there would be a strong natural tendency in the seed to produce varieties, but there is not sufficient evidence to support this belief. On the other hand, the more we become acquainted with large beds of wild Daffodils growing away from the influence of other varieties, the more we are led to the conclusion that like produces like in Daffodils as in other plants. We find, for instance, that the Daffodils of the north of Portugal form a set of varieties distinct from those of the Pyrenees, whilst the Maritime Alps and North Italy have special forms which retain their distinct characters. We must not dogmatise on these matters, but let us consider the case of the Tenhy Daffodil, which ripens seed and grows from it more freely than any variety I know. It covers several acres in South Wales, where it has grown for many generations; yet it continues remarkably constant to form, and varieties are hardly ever observed. Many similar instances might be mentioned. In gardens, on the other hand, where many varieties are in flower together, when we consider the readiness with which some distinct species of *Narcissus* produce hybrids, we may infer that *Pseudo-Narcissus* will readily cross with varieties of the same species, and we reasonably expect spontaneous varieties from seed.

Few of us have patience to raise successive generations of Daffodil from seed, keeping them carefully labelled for all the years—probably six at least—until they flower. So the history of new varieties raised in gardens is seldom known. It is more easy, however, to notice and record changes where no raising from seed takes place, changes which are produced by continued cultivation under favourable conditions of soil and climate. These conditions seem particularly favourable in many parts of Ireland, and I will give examples in illustration. I am indebted to Mr. Barr for calling my attention to the remarkable development in size and vigour which takes place in the Botanic Gardens at Dublin in the case of the variety of Daffodil called *maximus*. The size of this variety in those gardens is such that Mr. Barr for long believed it to be a distinct and gigantic and early-flowering variety. When, however, it is planted in England side by side with *Maximus* from Holland, and under the same conditions, the contrast the first year is very conspicuous. After a few years the two gradually assimilate themselves, until no difference can be seen. Another variety common in Irish gardens, and to some extent naturalised in Ireland, is named *Princeps*. As grown in Ireland this is

perhaps the largest of all Daffodils. It comes to us from there in several sizes, as *Princeps maximus*, *Princeps minor*, and so on. I can hardly say whether these differences are maintained in any gardens in England, but I can assert that after two or three years all the varieties of *Princeps* become so degenerate in Cheshire as to produce flowers hardly larger than those of the wild type of *Pseudo-Narcissus*. I may mention, too, the fine Daffodil called *spurius*, which has, I believe, recently been found wild by Mr. Engleheart in Italy. *Spurius* is a very old variety in the Dutch bulb farms, and comes thence to England bearing flowers of one size. It is now known that this variety is common in Ireland both as a naturalised and as a garden plant, and in more than one size, some resembling the Dutch plant in every particular except size, but being much larger. This may be due to the favourable conditions in Ireland for its growth. I have cultivated the large form for six years, and it still maintains its majority; but whether it will in time reduce its dimensions to the Dutch size time will show.

I will further add that it is useless to compare the merits of or to attempt to identify Daffodils until they have been grown together under the same conditions for a year or two. When this has been done we want continuous observations and careful notes of them through a series of years to see what changes soil and climate make in the same variety, in colour, size, habit, and form, especially noting the recurving of the corona to see whether this character is quite constant or due to climate or soil in any degree.

Again, we cannot be sure until we have tried them for at least two years what varieties are best suited to the special conditions of our own gardens. Daffodils, according to their variety, have their likes and dislikes. Most of them prefer rich rather sandy loam, retentive, but well drained, and on the cold stiff subsoil of my garden in Cheshire nearly all do better on raised beds. The *moschatus* section alone seem to like lighter soil of a peaty character. *N. minor* and *N. minimus* seem rather delicate and dislike wet; their flowers, which are dangerously near the ground, are much relished by slugs, and require, where such vermin abound, to be protected by perforated zinc collars or by a dressing of powdered tobacco—a valuable preventive. Several Daffodils are, comparatively speaking, failures in my garden. I have already mentioned *Princeps*. The major of trade produces few flowers and the foliage looks unhealthy. *Maximus* increases slowly, and is liable to be attacked by an obscure disease, which rots the base of the ball and prevents the formation of fresh roots. The Italian *Telamonius* looks healthy, but does not flower freely. The most floriferous of the larger kinds in my garden is *spurius*, whilst *Pseudo-Narcissus*, the type, said to degenerate and die out in some gardens, flowers and flourishes extremely well. So do *Horsfieldi* and *Emperor*. I have mentioned these instances to show that Daffodils require to be proved in each garden and selected accordingly.

#### AT WHAT DEPTH OUGHT DAFFODILS IN GARDENS TO BE PLANTED?

The answer depends partly on the variety to be planted, partly on the character of the soil and the subsoil; but let everyone who can make patient experiments and carefully record his observations on this point. My own experience is generally in favour of deep planting, especially in raised beds where the drainage is good. Such Daffodils as these called *minor* and *nanus* should, of course, not be planted more than half as deep as *Horsfieldi* and *Emperor*. In deep well-drained soils I plant from 4 to 6 inches deep in the case of the smallest kinds to a foot in the largest. When Daffodils that have been dug up wild are sent to us in leaf it is easy to see at what depth they have grown; and not only have I taken notice of this, but have inquired of those who have dug up Daffodils much abroad in their native homes. These accounts agree in telling of huge Daffodils with flowers as large as *Emperor*, which, after long and laborious digging, the finder was obliged to relinquish because they grew so deep. Some very fine Daffodils just received from Italy, where they grow wild, reported to resemble *maximus* in appearance, have grown at a depth varying from 12 to 18 inches; and my friend Mr. Engleheart mentioned others still larger, none of which he succeeded in digging up. Mr. Tait sent me the leaf and flower of a *lorifolius* found near Oporto, being as large as those of *Emperor*, the bulb of which was deep beyond his reach.

On the other hand, a number of *minor* sent last week from the South of France had grown at an average depth of 3 inches. The soil was rocky, and a large proportion of Oak-leaf mould was mixed with it on the surface. We must not, therefore, try to make our rules for depth too absolute. I need not point out that deep planting enables the gardener to cultivate other plants over them in summer, which may be done without any damage to the bulb, provided that the growth of the leaves is not interfered with, and the soil sufficiently enriched by a top-dressing.

Daffodils do far better on a border facing, in autumn, a south than with a north aspect. The doubling of Daffodils is a subject to which I have long paid special attention, though on several points connected with it my mind is by no means made up. It is certain that *N. Pseudo-Narcissus* doubles into a variety of forms, two of which may be particularly noticed. (1) The form in which the corona remains entire, and the doubling is confined to the inside of it; this we call the semi-double form. (2) The form in which the corona is split into six segments and spread open. This we call, for distinction, *Rose-double*. I have quite satisfied myself, by long observation, that these forms are not constant, but are often interchanged from year to year, depending upon conditions of soil and cultivation. About this time last year nearly 100 double typical *Pseudo-Narcissus* were sent to me, which were dug up wild when in flower. All of these were semi-double; but this year nearly all which have flowered at all have become *Rose-double*. In the southern counties of England and Wales the type *Pseudo-Narcissus* is often found double, growing mixed up



with single forms. It is hardly ever the Rose-double, but when transferred to gardens the Rose-double is the commoner form for it to assume. In spite of their taking that form, their tendency, in my garden, is to become constantly less double, until the divided corona closes together again, and the flower becomes entirely single and perfect in all its organs. These same bulbs, if sent to their native soil, produce double flowers again in a year. On the other hand, I have never, by any soil or cultivation, succeeded in persuading any single Daffodil to double in my garden. As regards the frequent assertions made that in some gardens the typical single wild Pseudo-Narcissus will change in a few years into the large double Daffodil called *Telamonius*, these assertions are too consistent, and made, I am certain, in too good faith to be at once rejected; but they require very careful investigation, which I have long been making, and still continuing to make. Botanists assure me that no metamorphosis of any part or organ is necessary to effect this change. That single Daffodils in some soils and under some conditions will produce double flowers is nearly certain. Mr. Tait of Oporto sent me last summer a bag of double-flowered Daffodils, which he assured me were dug up in the neighbourhood single, and when planted in his garden became double. There is no mistake about identity of variety in these; the single kind is unlike anything I have ever before seen in cultivation in England, and the double flower, although a hideous monstrosity, evidently belongs to the same variety; but, as I said before, assertions of this kind require careful sifting.

To conclude, lovers of the Daffodil may be congratulated on having a favourite which is easy of cultivation, presents endless variety, and gives less cause for anxiety through accidents than most flowers. Few destroyers, whether mice, or birds, or wireworms, attack the bulb of Daffodil. The Narcissus fly is a pest of a warmer climate than ours. Dwarf forms like *N. minor* and *N. minimus*, as I said before, invite slugs, which, however, attack the flower only. High winds, too, are serious enemies to Daffodil flowers. A westerly gale on March 31st snapped off at the ground line some of my best opening flowers; so that Daffodils should either be planted in a sheltered place, or, if in windy quarters, be tied up; but upon the whole there is no class of flowers which give a more satisfactory result with a less amount of labour than *N. Pseudo-Narcissus*.

#### CULTURE OF DIPLADENIAS.

WHETHER grown into large trained specimens for exhibition or for the decoration of the stove, these lovely climbers must always hold a foremost position amongst our choicest stove plants. If not wanted for exhibition the best plan is to fasten a trellis of wires underneath the roof of the house and at 8 or 10 inches from it. Over this the plants should be allowed to ramble freely, taking care to keep the shoots evenly and thickly disposed, so as to allow plenty of room for the proper development of the leaves and perfect ripening of the wood, which is highly essential to the free production of their flowers. Grown in this way, with some of the dark highly coloured flowers produced by *Brearleyana* and *hybrida* side by side, or intermingled with the delicate rosy pink ones of *D. amœna*, they present one of the most charming sights imaginable. The flowers when gathered are very attractive arranged in shallow dishes with a few fronds of *Adiantum gracillimum* forming a sort of screen over them, and if gathered in the morning when the house is coolest they remain in good condition for several days.

Dipladenias are easily propagated by means of cuttings. These will root at any time of the year, but the best time is in the spring, and the cuttings to be preferred are the young growths from the preceding year's wood, taken off with a heel when about 3 inches long. Inserted singly in 2½-inch pots, in a mixture of half peat and half sand, and placed under a bellglass in the hottest part of the stove, these will form roots in about a fortnight, and must then be gradually exposed to the ordinary temperature of the house. Next to these I prefer cuttings made from strong half-ripened shoots, such as may be obtained in May or June, but by striking them in the early part of the year they get fairly started before the hottest weather comes, and perfect their growth before winter.

To grow them well—and if not well grown they are best left alone—they require a rather high temperature when in active growth, and even in winter when at rest they must never be subjected to a lower temperature than 50° to 55°. If wanted to flower in May they must be started early in January, but generally speaking the beginning or middle of February is soon enough. At first starting they should be given a temperature of 60° to 65° at night, with a rise of 5° by day, gradually increasing it as the days lengthen, until by the end of April it ranges from 70° to 75° at night, and from 75° to 80° by day, allowing it to rise to 85° or even to 90° with sun. They delight in a moist atmosphere, and must at all times be shaded from bright sunshine, admitting at the same time as much light as possible. For this purpose the house should be provided with blinds, so that they may be rolled up and the plants exposed to the full influence of the light on every occasion when there is no sun.

The soil for Dipladenias should consist of three parts brown fibrous peat to two parts loam, which must be as turfy as possible, and all fine soil removed from it by sifting; to this add one-quarter part each of sand and charcoal, the latter broken to the size of acorns. A small quantity of Standen's manure may be added. If really good turfy loam is not available they may be potted in all peat; on no account should poor loam, destitute of fibre, be used. The pots must be well drained, and great care exercised in watering at all seasons, few plants being more liable to injury through neglect in this respect than Dipladenias. During winter especially, and before they have fairly taken to the new soil after potting, water must be cautiously applied, allowing the soil to get thoroughly dry before watering, but not to such an extent as to cause them to flag. I have seen them

treated as deciduous plants, and made to lose all their foliage in winter by keeping them dry at the root, but such treatment is decidedly wrong; they are naturally evergreen, and must at all times be given enough water to enable them to retain some of their leaves fresh and healthy.

Almost all kinds of insects to which stove plants are subject will live on Dipladenias, but with proper treatment the only ones whose attacks need be feared are mealy bug and brown scale, and these—provided the plants are thoroughly cleansed before they are started in spring—can generally be kept pretty well in check by using the syringe freely mornings and afternoons. Should they become too firmly established to be kept under by these means, syringing with that best of all insecticides, petroleum, will get rid of most of them. A wineglassful of petroleum to three gallons of water is as much as it is consistent with safety to use, as when growing freely the young leaves are very tender and easily injured. Even this quantity must be carefully applied, mixing it well with the water before syringing it over the plants, and washing it off with clean water a few minutes after. Keep them well shaded for two or three days, and, if properly managed, no evil will result from the application, which, if necessary, may be repeated in a week or ten days. Scale may be got rid of in the same way, but, being more difficult to destroy, it is generally necessary to syringe the plants three or four times in succession at intervals of not less than a week.

As soon as the flower buds appear give weak manure water at every alternate watering; that made from fresh cow or sheep manure and diluted with clean water to the requisite strength is as good as any for them. This will greatly prolong their season of blooming, besides making the individual flowers much finer in every respect. Without some such aid the trusses produced after the first flowers open will be very weak and will have only a small quantity of buds on each; strong trusses will frequently produce as many as thirty flowers in succession, lasting over a period of nearly two months.

Any plants that are intended for exhibition should be supplied with balloon or other shaped trellises of the size they are likely to require, and the whole of the wood fastened thereto before they are started. Each young shoot when about 3 inches in length should have a string placed for it to climb on, running from the trellis to the highest part of the roof, always, as before mentioned, giving each shoot a fair amount of room.

Comparatively small pots should be used, those 14 or 15 inches in diameter being sufficiently large for even the finest specimens. In pots of this size they may be grown year after year, turning them out just as they start into growth, and removing enough of the old soil to permit their being placed in the same pots again.

There are some varieties of Dipladenias with which I am unacquainted, but the following are all good, thoroughly reliable, and sufficient for almost all purposes—*amœna*, *hybrida*, *amabilis*, *crassinode*, *splendens*, and *Brearleyana*. The last named, with its flowers opening a delicate rosy pink colour, and changing with age to the richest crimson, is decidedly the finest of this truly magnificent genus of stove climbers.

—C. L. P.

#### GARDENERS AND PREMIUMS.

IN a recent number of the Journal your correspondent, "Thinker," made some allusions to the decline of the above. Hundreds of young men have paid premiums, and in return have received no more recognition from the head gardener than if they were day labourers, though the money is presumably paid for special instructions, &c. It is in the power of an intelligent chief to impart £5 or £10's worth of good to a youth in the course of two or three years, as I can testify from experience. My object at present, however, is not to defend or condemn the system, but to record what appears to me to be a very hard case and representative of many others from the same establishment. A young man has just left the gardens of an earl, where he had been engaged to perform certain duties with the understanding that he would be expected to pay a premium of £5 in an indefinite time. Before he had been in his place a month he was asked how he intended to pay this sum, and he replied by two or three instalments; but to his astonishment the following pay day 2s. was deducted from his wage, then after a time 3s.; and when he asked for an explanation he was as good as told that "if he did not like it he could go." Shortly he was set to perform duties the reverse of those he had been engaged for, and other matters were made disagreeable to him, obviously with the view of forcing him to give up his place in order that the "teacher" might extract the best part of £5 from another young man, and so make the premiums average that sum per man per annum, which in the case of seven or eight men would be a nice little sum. You will see, Mr. Editor, that if the matter was left to the men they would most likely pay a portion the end of the first year and the remainder the second, and some might enter the third before completing payment, which would evidently reduce the ill-got gains by one-half. It was understood on the place that his lordship some time ago made an allowance to the gardener of 1s. per week per man in order to abolish the premiums. This, if true, is a serious indictment, and it is a question whether the young man's friends will not inquire from his lordship whether the gardener had a right to do as he did. What says "Thinker?"—W. P. R.

#### NEW CONSERVATORY, THE MANOR HOUSE, THAMES DITTON.

WE are this week enabled to present our readers with a view of the new conservatory recently erected by Messrs. J. Weeks & Co. of Chelsea, in the garden of the Manor House, Thames Ditton, for Hanibal Speer, Esq.



The conservatory is built in what is known as the Queen Anne style of architecture, so as to harmonise with the mansion, which is a very fine example of that style. It will be seen that the building is span-roofed, oblong in shape, with a large recess on the east side, surmounted with a gable; but the chief and novel feature of the arrangement is the picturesque and somewhat unique treatment of the front, which is formed

white transparent glass in the ordinary way; the small upper squares are filled in with pale neutral green glass; the transom sashes are glazed with tinted lead glazing, and the roof with one-eighth rolled plate. The details have all been carefully considered, all the parts are admirably proportioned, and the general external effect of the building is most satisfactory.

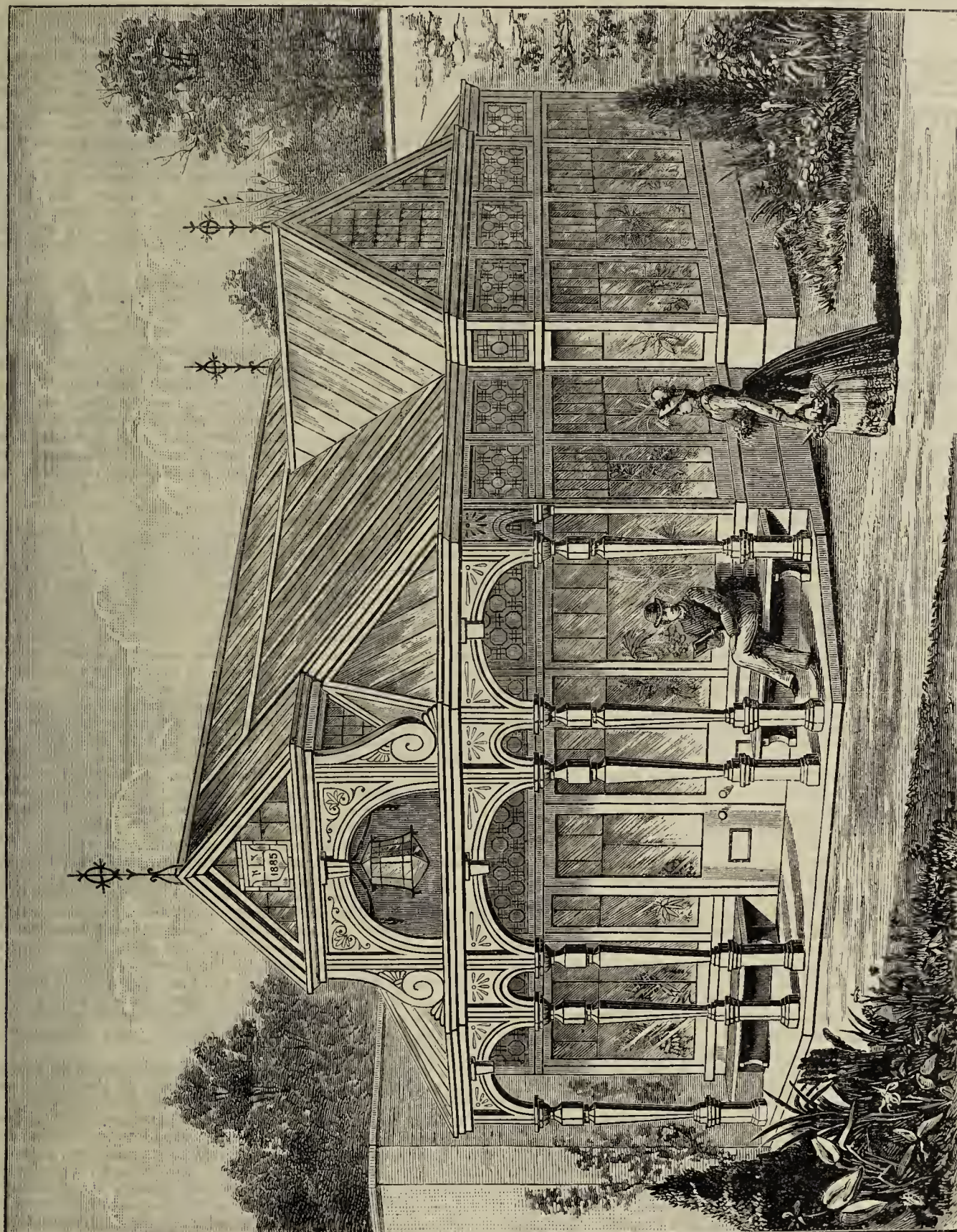


Fig. 64.—NEW CONSERVATORY, THE MANOR HOUSE, THAMES DITTON.

into a large and highly ornamental open projecting porch, the roof of which is carried on square and octagonal columns with carved cups and bases, and which is provided with seats facing the lawn. This porch forms a most agreeable lounge, from whence the sports or games being enacted on the lawn may be witnessed. The glazing of the building is varied and effective. The lower squares of the sashes are glazed with

No less care and judgment have been displayed in the arrangement of the interior. The building has not been cut up into a number of small beds and paths in the usual manner, but the centre has been left free for promenade, leaving a clear view from end to end. Exactly opposite the door at the opposite end of the building is a small group of rockwork covered with Ferns and having water trickling down into a small pond,



and round the sides are artistically shaped beds formed of stone cable edging, bordered with flowers and backed up with large and choice plants and trees, the whole forming a striking and effective comp d'oeil. The floors of both conservatory and porch are covered with black and white encaustic tiles in very small squares of Messrs. Minton's manufacture, and every portion of the building is of first-class design and workmanship.

The general effect is further enhanced by the tasteful arrangement of the surrounding grounds, which, amongst other numerous attractions, contain some very choice Cedars.



#### KITCHEN GARDEN.

OUR principal enemy this spring, the ungenial weather, appears to have departed finally, and the soil has been in capital order for sowing and planting. Early crops are growing rapidly, and our kitchen garden has now quite a spring-like appearance. Those who are behind with their cropping should push the work forward as fast as possible.

**POTATOES.**—The whole of the early ones should have been planted some little time ago. Those along the bottom of our Peach wall are now 6 inches high, and as they have enjoyed the protection afforded to the trees while in bloom they are healthy and strong. Those planted in rows across a south border are about 2 inches high, and as soon as they become this height they should be earthed up. This affords the stems support and shelter, and must be always practised. Where manure was deficient at planting time sprinkle a little guano or some artificial manure round the plants before earthing up. Planting late Potatoes must be finished as soon as possible. The Champion, Magnum Bonum, and some others make more stem than the early sorts, and they must be given more room. From 2 feet to 30 inches is not too much from row to row for late Potatoes, and the sets should be placed 18 inches apart. Frame Potatoes now being dug are turning out well.

**ASPARAGUS.**—This is very late this season. Some seasons we have cut quantities from the open during the first and second week in April. This year we shall not be able to cut in any quantity until the first week in May. Our main piece for cutting is 30 yards wide and 100 yards in length, the whole of the roots being planted from 2 feet to 3 feet apart, and the first wet day a handful of guano will be sprinkled round the plants to assist in strengthening the young growths that will be cut during the next month, also to benefit those which will be left to grow throughout the summer.

New plantations may now be made. Those who buy roots should procure them two years old at least, and three years if they wish to make a good beginning and cut largely next year. We always raise our own seedlings; but some may not have the convenience to do this, and others who have not sown seed last year or before that to produce roots may not be inclined to wait until seed sown now would produce plants. Before any attempt is made at planting, the ground must be thoroughly prepared for the roots. It must be deeply dug and heavily manured, and where the soil is heavy a quantity of sand or light road scrapings should be added, as the roots being very fleshy are apt to perish in stiff soil. The roots may either be put in beds or planted on the level without forming these; in any case they should not be planted closer to each other than 18 inches each way. Spread the roots out star form without being cramped or twisted round, and the holes should not be more than 6 inches in depth. In buying roots from a distant nursery the holes should be ready on their arrival; they should be forwarded by passenger train, and the shorter the time they are out of the ground the better, as it is very injurious to allow them to become dried. If the weather is dry at the time of planting water immediately afterwards.

Asparagus seed should also be sown; 1 oz. will produce some hundreds of roots. It ought to be sown in light rich soil in rows 18 inches apart and 2 inches deep. As the young plants will remain in the seed rows for one year at least, sow thinly, and where ground is scarce rather keep the rows 9 inches or 1 foot apart than sow thickly to get a certain number of plants.

**BET.**—Half the main crop of the long sorts, such as Dell's Crimson, should be sown now, and the other half in a month or so, as moderate-sized roots are more desirable than very large ones. Soil medium in richness and rather open will produce fine clean roots. Sow in drills 15 inches or 18 inches apart, and 2 inches deep, and remember it is only a waste of good seed to sow thickly.

**PEAS.**—If the weather becomes very dry give the earliest rows a good watering with liquid manure. Stake all advancing crops before they fall to one side. Sow quantities of main crop varieties for use about the end of July and the beginning of August, the trench system only being practised at this season.

**BROAD BEANS.**—Early crops are pushing on rapidly, and if any are wanted in July sow at once. Those intended for exhibition should be sown in trenches with a large quantity of strong manure forked in before sowing the seed. Carter's Leviathan is supreme for showing.

**KIDNEY BEANS.**—These include Dwarf and Runner varieties. They are sometimes sown in the open before this time, but success rarely follows early sowing, as the seed is tender and apt to perish in the cold soil, while the young plants are more tender still, and if not checked by frost they often assume a yellow hue, which makes them very unprofitable. The first week in May, however, is not too early to sow generally, and by giving them a warm sheltered spot they will grow freely and produce profusely almost as early as any sown weeks ago. A few rows of Ne Plus Ultra, Osborn's, or some other very early sort may be sown as well as a small quantity of Canadian Wonder to succeed these. Keep the rows about 20 inches apart, and do not sow the seed deeper than 2 inches. Cover up if possible with a quantity of light old soil from the potting-shed, as in wet districts or cold soils this helps the germination of the seed and free growth of the young plants. A row of Runner Beans may be sown at the same time. Make a shallow trench, dig plenty of manure into it, sow the seed 3 inches from the surface, cover with the soil above recommended, and a fine crop of early Runners will be the result.

**SPINACH AND TURNIPS.**—The early crops of these grow but slowly. We never had spring Turnips so backward, but successional crops must be put in, and a good sowing of both of the above should be made. To have the leaves of summer Spinach large and succulent the seed must be sown in rich soil; in poor material it would be a failure. Before sowing the Turnips sprinkle a quantity of soot or lime over the ground. Dutch hoe it in, then open the drills, and sow the seed, and the fly or grub will not be troublesome. It is better to check them before sowing than try to eradicate them when once established.

**VEITCH'S AUTUMN GIANT CAULIFLOWER.**—This is a variety of such extreme usefulness that we give it a note to itself. It is unique from September until December, and seed should be sown at once to give plants that will bear during the period named. It is by no means tender, and may be sown along with the Kale and Savoys.

**HERBS.**—Mint is strong and healthy, evidently much benefited by the surface dressing of manure put on it some time ago. Thyme and Sage are making fresh growths, and these are three herbs which should be grown in quantity by all. Mint is easily increased by dividing the roots. Sage and Thyme come readily from seed, and Tarragon, summer and winter Savorys and all other hardy herbs do the same. Sow now in light rich soil, and give established plants plenty of manure to promote luxuriant growth.

#### FRUIT FORCING.

**VINES.**—*Early Houses.*—Vines in all stages have been greatly benefited by increased ventilation and early closing with sun heat in lieu of incessant firing, which has been absolutely necessary for many months to maintain the minimum temperature. Excessive firing encourages red spider, particularly on Vines that are carrying full crops of Grapes through the winter and spring, as firing must be constantly kept up to secure the requisite temperature, and as these troublesome insects spread with alarming rapidity the usual remedies must be applied without delay. Some, when driven to extremities, resort to the syringe, but the application of water, even in the hands of the most careful, is liable to damage the bloom, soft water in some cases leaving a mark where the water hangs on the berries. Sponging the foliage is a tedious operation, but if done in time the Vines may be kept in good health until after the crop has been removed, and as future crops depend upon the preservation of the foliage, early attention to this work is imperative. A careful examination of the inside borders should be made, and if they are dry a liberal application of tepid liquid manure will be found a powerful aid to the Vines. Grapes now colouring fast will require abundance of warm air by day and night with plenty of moisture on the paths, walls, and mulching. Gradually reduce the night temperature as the Grapes ripen, keeping the atmosphere dry and cool where they have to be kept any length of time. When approaching ripeness moderate fire heat will be required to keep up a circulation of rather dry warm air by day and a temperature of about 60° at night. Guard against excessive dryness, as early Grapes with ventilation require much more water than late ones. Gradually remove the remains of fermenting materials from outside borders, leaving a good mulching of the most suitable—*i.e.*, that only partially decayed, for the protection of the surface roots, and allow them to have exposure to the summer rains, which will wash in the fertilising elements of the manure, and stimulate the Vines into the production of new laterals after they are relieved of the crop.

*Midseason and Muscat Houses.*—Thinning must be attended to in the case of the free-setting varieties as soon as the berries are set, but Muscats should be left until the properly fertilised berries take the lead. If a large percentage of the surplus bunches were not cut off before they flower no time must be lost in getting them removed, and laterals that have been allowed to ramble may be stopped, tied, and regulated in accordance with the uncovered space at command. Give inside borders a thorough soaking with tepid liquid manure, and mulch with short manure, it being preferable to use the droppings fresh from the stables spread over the whole surface in order to afford the Vines the benefit of an ammonia-charged atmosphere, but care must be taken not to overdo it, or the ammonia will be too powerful for the tender foliage of the Vines. It may be obviated if there is any danger of this by admitting a little air constantly at the top of the house. Ventilate early, and increase it with the rising temperature, closing sufficiently early for the temperature to rise to 85° or 90° with plenty of atmospheric moisture. Before night a little ventilation given at the apex will allow the vitiated air to escape, and prevent the deposition of moisture on the foliage.

*Late Houses.*—The passing month, though better than its predecessors, has been cold with little sun, and though there are complaints of bad



breaks, which are attributed to last season's dryness, late Vines have, as a rule started well, and are now making good progress. Some complain, however, of the tendency to the production of tendrils or loose bunches, a sure sign of imperfectly ripened wood, and in some instances the shows are not as good as usual; but the bunches are compact, and these, as a rule, are just the kind to be wished for keeping, as the footstalks of the berries are usually stout and keeping fresh up to June. In order to prevent the disposition to run into tendrils, the late Vines should be started earlier, and be ripened earlier with more fire heat if necessary in early autumn, so as to secure thoroughly finished fruit and perfectly matured wood. As a means of correcting it the shoots should be tied down to the wires, and stopped to within three or four joints of the fruit, the best time for performing this being the latter part of a fine day when the growths are limp, and keeping rather drier and warmer by day. Fertilise Muscats, and other shy-setting varieties every fine day, when the temperature has reached the maximum, having removed the greater part of the surplus bunches prior to their coming into flower. To have Gros Colman, Gros Guillaume, &c., thoroughly ripe and fit for use before Christmas the fruit should now be setting in what ought to be termed a midseason rather than a late house, as these require more water and a longer time to ripen than other Grapes.

Newly planted Vines should now be well mulched and liberally supplied with water, closing early with plenty of atmospheric moisture. Allow laterals free scope, but those from the lower part of the canes should be kept closely pinched, but the old leaves must be carefully preserved.

Look well to pot Vines, and if late planting is contemplated no time should be lost in making the needful borders and getting the planting done. Large-growing plants from pots or turves may be transferred at any time, but the earlier the better, as Grapes cannot be obtained from badly ripened wood, neither will half-ripened canes, when cut down, make such clean short-jointed growths next season as others that have been properly ripened and rested through the autumn.

*Melons.*—This fruit in the early house or hotwater-heated pit will be ripening, and will need a drier yet buoyant atmosphere in order to secure good flavoured fruit; hence the advisability of ventilation at night, as pent up air is not only against the colouring and flavour, but is likely to cause the fruit to crack. Maintain a night temperature of 70°, ventilate at 75°, and increase it as the temperature rises. Close the house at three to half-past in the afternoon. Add more soil to the hillocks as the roots push through the sides of the mounds, which must be repeated at intervals until the allotted space is filled. Do not allow young plants intended for planting to become root-bound before being planted, or they become stunted and rarely make a free growth afterwards. Any that are likely to get into this state should be shifted into pots a couple of sizes larger than those they are at present in, in order to keep them in steady progressive growth until the hillocks in the house, pits, or frames are got ready for them.

## THE BEE-KEEPER.

### INITIATORY INSTRUCTIONS.—No. 3.

PREVIOUS to supers being placed on the hive they must be fitted with comb foundation; the narrower the better it will be, as in many cases the bees do not pare down the sheet of wax, the neglect of which makes it unpleasant to the consumer of the honey. Sheets made from native wax is superior to any foreign sample I have yet seen. Bee-keepers should secure their own wax and have it made into sheets.

Divisible supers, for convenience in every respect, are what should be used, each bar having a groove in centre  $\frac{1}{8}$  by  $\frac{1}{8}$  of an inch. After straightening the strips on a table grip these so that they be not twisted, slipping them into the groove, then from a glue pot filled with wax fully melted, and the water boiling, take a teaspoon, keeping it in the wax until it is well heated, without which the wax is cooled, sets upon the spoon, and prevents the work being done satisfactorily. Now take each bar in the left hand, and holding it at an angle so that the wax will keep close to the sheet and run down the groove from one end to the other, then repeat on the other side. Be sure and fill every part of the groove on both sides. This must be adhered to with frames as well; by doing so it induces the bees to build the comb close to its foundation, and prevents the bees interposing small pieces of comb and deviating from the straight line, which destroys the beauty and symmetry of the super. The same instructions apply to the fastening of comb foundation in supers where the bars are secured. If full sheets are determined on, unless they are steadied they are liable to collapse; to prevent them doing so, nail little strips of wood to a piece about five-

eighths of an inch square, in size and number to pass between every bar to the full depth of the sheet or box. This rake-like contrivance is effectual in preventing any collapse, gentle handling and keeping in the natural position all deep foundation and newly made combs is the imperative duty of all bee-keepers.

When supers are placed on the hive, be sure it is smooth and free from any obstruction whatever; and as it is always advisable to pass a cord between super and super as well as the lives to sever any attachments of comb, it is well to put a very thin wedge at each corner between each division to allow the cord freedom of passage—a thick shaving is sufficient. It is very advisable to gum a strip of paper at each junction, or get a ball of tailor's reeds and wind a strip or two round each and fasten with a pin. It is always most pleasant to look at a clean super—a rather difficult thing, as the bees soon discolour everything they travel on, but the bee-keeper must use his best endeavours to preserve its pristine cleanliness. And here I may observe the Stewarton deep hive possesses this advantage in the highest degree, a matter of no little importance in bee-keeping, not only to the man who sells his honey, but to those who make it a pride in showing to the greatest advantage, along with flowers on his dining table, a magnificent super of honey made and gathered by his own bees, and perhaps from his own flowers. Then what a pleasure it is to both the giver and recipient when a handsome super is made to change hands as a present at a season when these are fashionable. These are the people I would urge to turn their attention more to keeping bees. Country gentlemen who have accommodation and means to keep bees are numerous, and yet how few, comparatively speaking, keep them! and where there is a family, how useful would the produce be to them, not speaking of the interest to them otherwise, as well as the lessons which might be of great benefit in after life. But I am digressing.

It is important that the junctions are made secure, as bees will not work where a draught is until all is close, so that the bee-keeper doing this saves the bees much labour in closing up with propolis or wax.

A good supply of calico is handy for the first layer, which keeps all clean, next either dried grass or any kind of woollen cloth, new or old, heaped on until the bees will not be affected by any change of temperature. A uniform degree of heat inside the hive is one of the best means towards a successful issue. In covering supers it is necessary to have them so that they can be easily inspected either from the windows or from between the bars at the top. The bee-keeper must, therefore, keep that in view, and arrange the coverings that a peep can be had at the super to see the progress made without disarranging the whole coverings, and let every manipulation be made from the back of the hive; never stand in front unless when it cannot be avoided.

Whenever, from any circumstance, these instructions cannot be carried out use your own judgment in the matter what should best be done, remembering at all times that Art can never excel Nature. Always err on the safe side in whatever you do. Have your hives extra strong rather than weak, and never depend on more than one week's fine weather at a time unless the prognostications clearly indicate a longer continuance. Never allow bees to loiter, crowd out, or fan much at the door. A little ventilation will ease the bees of the trouble and carry away unaided by them all vitiated air and excessive moisture; that is what we call assisting nature. A very little experience soon shows by the action and activity of the bees whether more room is required or not. Whenever this is observed by fewer bees working lose no time in giving more super room, and never attempt to super hives unless the body is of sufficient size. As before mentioned, rather put two hives together and have one strong rather than two weak, but if my instructions are attended to weak hives will be the exception.

Whenever a super is observed to be completed remove it at once. If the under one or ones, lift the topmost ones off in



a body first, then take the thickish brown paper kept flat between two boards, and recently painted with crude carbolic acid, and of the right lengths, insert these in each division (after you have passed the cord through and placed a sheet of thick cardboard on the top of the super impregnated with carbolic acid, which should be slid on immediately the upper ones are removed so as to clear the bees away) inserting the one after the other as the cardboard is slid off. If this work is properly done every bee will have left the super before you have got all the papers withdrawn, dispensing altogether with smoke, and is better for both bees, honey, and combs. Taking off supers and otherwise manipulating with bees under the influence of carbolic acid is mere child's play, and is in happy contrast to the older systems, where the operator had to be not only veiled, gloved, and armed with a bundle of smoking rags or smoker, rendering him when so equipped but a clumsy operator. The most difficult task was removing the bees from the super, not speaking of the great risk of infuriating the whole bees in the apiary to sting all within reach, and be despoiled of the contents of the super besides. Happily for bee-keepers there need not be such risks now. I must here leave the beginner to act according to his own judgment and good sense, seeing that it is hidden from us what the future is to be, or how long the honey glut will last, but it is certain, however, to end whenever rain approaches, or after a few weeks' drought, both being alike fatal to a honey glut. I have only experienced two seasons that bees gathered honey from Clover a second time after it had been once stopped, and only once have I witnessed bees working on Red Clover, black bees and Ligurians alike, recorded in this Journal about 1863.

After the honey season is past, whether in view of a future Heather harvest or not, steps should be taken to depose the reigning queen and supersede her by the introduction of a young one. A good plan to do this with hives of the Stewarton type is to withdraw all the slides on top of the upper box, using the same precautions with cardboard as advised with supers, and empty the upper box of bees in the same manner. If it is filled to a cell better to keep it off altogether and use the honey, using a screw presser and a drainer for the purpose of getting it separated from the comb and having it a pure sample. If it is necessary to do this repeat the operation with the next box. When it is clear of bees place the young queen caged over or between the combs, cover up and place on original stand, now remove the under box, place it on the top of some empty ones and drive the bees down by former process. When empty prune out superfluous drone comb and replace it on the stand underneath the queen. Many of the adult bees will have returned to their old site gorged with honey and in a fit state to fraternise with young queens, which may be liberated in twelve to twenty-four hours after. The old queen along with the remaining young bees will now be in the empty hive, but owing to their greater paucity now the queen will be easily found, when she should be removed and the remaining bees shaken on to a sheet of cloth or metal having a ladder attached reaching to mouth of the hive, when the bees will immediately ascend and enter their hive. All this may be done without receiving a single sting or provoking any disturbance whatever. After a queen has been much taxed laying to keep up the population of strong hives during the spring and summer up till July, it is absolutely necessary to dethrone the queen regent during that time if a full gathering is to be expected subsequently at the Heather. Another thing to be borne in mind is that from the time the first egg is laid till the first bee works a space of about thirty-six days must elapse, but at the middle of that term the hatching bees liberate the older ones from the internal duties of the hives to the field work, the young bees taking the place of their elder sisters in the nursing of the young bees. In my next article I hope to be able to give substantial proof in some matters of the superiority of the Stewarton hive, specially as to wintering.—A LANARKSHIRE BEE-KEEPER.



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CORRESPONDENTS.—We desire to assure those of our correspondents whose letters and communications are not promptly inserted that they are not the less appreciated on that account. Our pages are practically filled several days prior to publication, and letters arriving on Wednesday morning, except by special arrangement, are invariably too late for insertion. The delay in the publication of some of these is not of material importance, but reports of meetings and shows held a week previously lose much or all of their value if not received in time to appear in the current issue.

Tea Roses for Walls (*F. J.*).—We think you penned your letter of inquiry before you read the Journal of last week, and we have now only to direct your attention to the article of "D., Deal," on page 316. Other good varieties are Souvenir d'Elise Vardon, Madame Lambert, and Souvenir d'un Ami, which differ in colour from those named in the notes referred to.

Chrysanthemum segetum (*A. McM.*).—The experiments you purpose making will be interesting, and if you succeed in obtaining any crosses of a distinct character you should send specimens with particulars to the Scientific Committee of the Royal Horticultural Society, South Kensington.

Dutch Bulb Growers (*A Subscriber for Many Years*).—The following are the names, placed alphabetically, of six of the wholesale bulb-growers in Holland, who supply the retail firms in Great Britain:—Byvoet Brothers, Hillegom; J. H. Kersten & Co., Haarlem; J. Polman Mooy, Haarlem; F. Van Velsen & Sons, Haarlem; F. & H. Van Waveren, Hillegom; and M. Van Waveren & Sons, Hillegom. In reply to your other question, write to Mr. Louis Van Houtte, Royal Nursery, Gendbrugge, Ghent, Belgium.

Cucumbers Scorching (*H. H.*).—If the glass is not very inferior—that is, unusually full of lens, we think there must be some mistake in the ventilation and water supply both in the soil and atmosphere. Are you certain the soil is sufficiently moist, not near the surface alone, but below? Examine it, and if at all dry make it thoroughly moist throughout. With good attention in those respects—that is, early ventilation and adequate moisture, you ought to have no difficulty in preventing the foliage scorching, with the rays of the sun subdued by a sprinkling of thin whitewash applied to the roof outside with a syringe. If you have a thick covering of whitewash on the glass wash it off and try the plan recommended. We feel certain that one cause of the evil is an insufficiency of water. A very great quantity will be required in a span-roofed house of the kind shown in the sketch you have enclosed.

Grapes not Colouring (*Desideratum*).—Want of colour is generally the result of inadequate support. The Vines have either been overcropped, the border is too poor, or the root-action defective through the coldness of the soil or drought. It is doubtful if lime would be of any material benefit unless the border be very rich indeed, then a good dressing would be certain to do good. You give no particulars whatever about the border, but simply leave us to guess at its state, and we are inclined to think that very copious applications of tepid liquid manure will benefit the old Vines. Your other question is unanswerable. Either work fairly at the verges yourself for an hour, or set a good man at work for a time, and you can soon ascertain how much ought to be done in a day, and decide on a fair price for any given length. Everything depends on the condition of the verges and the soil in settling the question.

Woodlice (*R. R., Belfast*).—We have previously stated that woodlice have been caught in thousands by placing some partially decayed and dirty old boards face to face, and covering these with litter where the pests abound. Smooth new boards are of no use, but the older they are the better, and there should be space for the woodlice to enter between them. They should be examined every morning, taken up, held like a trough, and the contents emptied into a tank or vessel of water. A vinery containing Mushroom beds swarmed with woodlice last year; tens of thousands were caught in the simple manner described, and this year there are few to be seen. It is a certain mode of riddance if properly carried out.

Wireworms—Tomatoes (*An Old Subscriber*).—As the Asters will not be ready for planting for some time, we should at once plant the ground with Potatoes, putting any sorts of old tubers in thickly, and when the growths are above ground, or just before the Asters are ready for planting, dig out the Potatoes carefully and burn them, as they will in all probability contain the greater number of the wireworms now in the soil. Carrots



will do as well. We have known this plan to answer admirably. Before planting the Asters give the ground a heavy dressing of soot, as this will be distasteful to the wireworms and a good manure for the plants. We saw both the varieties of Tomatoes you name with single stems 15 feet high last year, and you ought to have no difficulty in covering a trellis with them in your Cucumber house, planting in enriched turfy loam, making the soil firmer than is generally used for Cucumbers.

**Mushrooms (G. M.).**—The Mushrooms you sent are safe enough, but not good. We at first thought they were samples of *Agaricus campestris* var. *silvicola*, but we do not think so now. We believe them to be ordinary Mushrooms changed in colour by ammonia from the bed, and conclude that either the manure has not been sufficiently purified or the casing of soil is either too thin or has shrunk, leaving small fissures, so small perhaps as not to be very discernible. In a long house in which additions of three or four yards are made of fresh materials at intervals of three weeks for securing a successional supply of Mushrooms, there is almost always a row of silvery-gilled Mushrooms across the older portion of the beds after each addition of fresh manure to the end of the row, but those following afterwards are of the right colour. We have a specimen before us now with the gills whitish except where the edge has turned up, as it does with age, and there the gills are pink. The turned up portion escaped the direct action of the ammonia rising from the bed. Try the effect of another covering of loam and do not let the surface of the bed get dry, and you may possibly effect a change for the better with your crop.

**Hedge Unsatisfactory (Cambridge).**—It is almost impossible to induce a thin hedge to thicken at the bottom without reducing its height. Improvement may sometimes be effected by cutting down some of the growths which form the hedge without materially impairing it as a screen; and some growths may occasionally be spared for "laying"—that is, cutting them almost through at or near the base, so that they can be bent down and affixed in position where required. Notes on hedges will be found in another column from a contributor who has had great experience in the work on which he writes. Hedges often get weak through poverty of soil and drought, and they invariably suffer in that respect under trees. The only remedy in such a case is to break up the ground, so that strong and copious supplies of liquid manure can be directed to the roots, afterwards top-dressing with a thick layer of good manure. Where it is convenient to do so strong young plants may be put in for forming a better base, providing enriched soil, and keeping the roots moist.

**Thuia Lobbi for Screens (R. W.).**—Without doubt this is one of the best Conifers for forming ornamental hedges and valuable sheltering screens, though it would be some time before getting tall enough for protecting standard orchard trees. It is very elegant in growth, and retains its bright green colour in winter. It grows freely in good loamy soil, such as is suitable for fruit trees. One row is sufficient for forming a good screen. We know of a number of trees that were planted 6 feet apart all grown together now forming a beautiful hedge 20 feet high and 8 feet through at the base. The distance for planting depends entirely on the size of the trees and whether a close hedge is desired at once. If a space be allowed between the trees equal to their diameter they will soon touch each other, and every alternate one can then be removed if desired to form another screen, or they can be left and trimmed to form a close hedge. You will find much of interest in respect to this fine North American tree in Veitch's "Manual of the Coniferae," in which it is illustrated. There is some confusion regarding its nomenclature. Its correct name is no doubt *Thuia gigantea*, but the Conifer widely known under this name is *Libocedrus decurrens*; but we think the Conifer you inquire about is sold as *Thuia Lobbi* by most nurserymen. It was introduced by Messrs. Veitch & Sons in 1853 through their collector, Mr. William Lobb, hence its name.

**The Morel (Kittie).**—The specimen you have sent is undoubtedly the Morel (*Morchella esculenta*). From the complaint that Dr. Badham makes, that in England this fungus is only known as an article procurable at the Italian warehouses, we augur that he has not been brought up among the thrifty housewives of Yorkshire. In the kitchens of that county, at any rate of the northern and western divisions of it, a string of Morels pendant from the ceiling is as familiar an object as a bunch of Sage twigs, or bundles of Thyme; and the heads of the household complain of the cook's neglect if she omits the Morel flavour in certain sauces. As children we knew the plant at sight, and brought it home whenever we encountered it in our walks; and the poor knew it also, for ever and anon the women who gathered Cowslips for the wine-brewing would bring a few in the corner of their basket, and plead for an extra shilling for the "Jew's Ears," as they were pleased to call the Morel. In Germany the excellence of the Morel was well appreciated, and, finding that it flourished the most luxuriantly on wood ashes, it became a regular system to burn down a portion of the forest annually to secure a crop of Morels. This custom was stopped by an edict of the Government, and thus legislation was turned against the fungi. M. Roques gives some receipts for the dressing of the Morel, which our readers may find serviceable:—"1st. Having washed and cleansed them from the earth which is apt to collect between the plants, dry thoroughly in a napkin, and put them into a saucepan with pepper, salt, and Parsley, adding or not a piece of ham; stew for an hour, pouring in occasionally a little broth to prevent burning. When sufficiently done, bind with the yolks of two or three eggs, and serve on buttered toast. 2nd. Morels à l'Italienne.—Having washed and dried, divide them across; put them on the fire with some Parsley, Scallion, Chervil, Burnet, Tarragon, Chives, a little salt, and two spoonfuls of fine oil. Stew till the juice runs out; then thicken with a little flour; serve with bread crumbs, and a squeeze of Lemon. 3rd. Stuffed Morels.—Choose the freshest and whitest Morels, open the stalk at the bottom, wash and wipe them well, fill with veal stuffing, anchovy, or any rich farce you please, securing the ends, and dressing between thin slices of bacon. Serve with a sauce like the last."

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once.

(C. N. L.).—1, *Narcissus incomparabilis aurantius plenus*; 2 resembles a *Grevillea*, but cannot be determined by the leaf alone; 3, We do not recognise; 4, *Polygala Dalmaisiana*. (Earn).—1, *Cœlogyne barbata*; 2, *Cœlogyne ocellata*; 3, Will be named next week.

**Bees (Jacobis and A. E.).**—We have forwarded your letters to "A Lanarkshire Bee-keeper," and requested him to attend to them through the post.

## COVENT GARDEN MARKET.—APRIL 28TH.

Trade falling off, and prices of house fruit lower.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	½ sieve	2 0 to 3 6	Peaches .. .. .	per doz.	0 0 to 0 0
„ Canadian ..	barrel	12 0 20 0	Pears, kitchen ..	dozen	1 0 1 6
Cobs, Kent ..	per 100 lbs.	27 6 30 0	„ dessert .. ..	dozen	0 0 0 0
Figs .. .. .	dozen	0 0 0 0	Pine Apples English ..	lb.	1 0 1 6
Grapes, New ..	lb.	2 6 8 0	Plums .. .. .	½ sieve	0 0 0 0
Lemons .. ..	case	8 0 10 0	St. Michael Pines ..	each	2 0 6 0
Melon .. .. .	each	0 0 0 0	Strawberries .. ..	per lb.	3 0 8 0
Oranges .. ..	100	4 0 6 0			

### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	dozen	1 0 to 0 0	Lettuce .. .. .	dozen	1 0 to 1 6
Asparagus .. ..	bundle	2 0 8 0	Mushrooms .. ..	dozen	0 6 1 0
Beans, Kidney ..	lb.	2 0 2 6	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red .. ..	dozen	1 0 2 0	Onions .. .. .	bunch	0 3 0 0
Broccoli .. ..	bundle	0 0 0 0	Parsley .. .. .	dozen bunches	2 0 5 0
Brussels Sprouts ..	½ sieve	0 0 0 0	Parsnips .. .. .	dozen	1 0 2 0
Cabbage .. .. .	dozen	3 0 4 0	Potatoes .. .. .	cwt.	4 0 5 0
Capsicums .. ..	100	1 6 2 0	„ Kidney .. ..	cwt.	4 0 5 0
Carrots .. .. .	bunch	0 3 0 4	Rhubarb .. .. .	bundle	0 2 0 0
Cauliflowers .. ..	dozen	2 0 3 0	Salsify .. .. .	bundle	1 0 0 6
Celery .. .. .	bundle	1 6 2 0	Scorzonera .. ..	bundle	1 6 0 0
Coleworts .. ..	doz. bunches	2 0 4 0	Seakale .. .. .	per basket	2 0 3 6
Cucumbers .. ..	each	0 3 0 8	Shallots .. .. .	lb.	0 5 0 0
Endive .. .. .	dozen	1 0 2 0	Spinach .. .. .	bushel	3 0 4 0
Herbs .. .. .	bunch	0 2 0 0	Tomatoes .. ..	lb.	1 0 3 0
Leeks .. .. .	bunch	0 3 0 4	Turnips .. .. .	bunch	0 4 0 0

### PLANTS IN POTS.

		s. d.	s. d.			s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0	to 13 0	Ficus elastica ..	each	1 6	to 7 0
Arbor vitae (golden)	dozen	0 0	0 0	Ferns, in variety ..	dozen	4 0	13 0
„ (common)	dozen	6 0	12 0	Foliage Plants, var.	each	2 0	10 0
Arum Lilies .. ..	dozen	9 0	18 0	Genistas .. ..	dozen	6 0	12 0
Azaleas .. .. .	dozen	24 0	42 0	Hyacinths .. ..	dozen	6 0	9 0
Begonias .. .. .	dozen	0 0	0 0	Lilies of the Valley, in			
Bouvardia .. ..	dozen	0 0	0 0	clumps or pots, per doz.	13 0	18 0	
Cineraria .. ..	dozen	8 0	12 0	Marguerite Daisy ..	dozen	8 0	12 0
Cyclamen .. ..	dozen	12 0	24 0	Myrtles .. .. .	dozen	6 0	12 0
Cyperus .. .. .	dozen	4 0	12 0	Palms, in var. ..	each	2 6	21 0
Dracena terminalis,	dozen	30 0	60 0	Pelargoniums, scarlet, doz.	4 0	8 0	
„ viridis .. ..	dozen	12 0	24 0	Primulas, single, dozen	0 0	0 0	
Erica, various ..	dozen	12 0	24 0	Solanum .. .. .	dozen	0 0	0 0
Euonymus, in var.	dozen	6 0	18 0	Spirea .. .. .	dozen	12 0	18 0
Evergreens, in var.	dozen	6 0	24 0	Tulips .. .. .	12 pots	6 0	9 0

### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. 12 bunches	0 0	0 0	Lilium longiflorum, 12 blms.	6 0	to 9 0
Acacia (Mimosa), Fr., per bunch .. .. .	2 0	4 0	Lily of the Valley, 12 sprays	0 9	1 0
Anemone .. doz. bunches	2 0	6 0	Marguerites .. 12 bunches	3 0	6 0
Arum Lilies .. 12 bunches	4 0	6 0	Mignonette .. 12 bunches	3 0	6 0
Azalea .. 12 sprays	0 6	1 0	Pelargoniums, per 12 trusses	0 9	1 0
Bouvardias .. per bunch	1 0	1 6	„ scarlet, 12 trusses	0 4	0 8
Camellias .. 12 bunches	2 0	4 0	Poinsettia .. 12 bunches	0 0	0 0
Carnations .. 12 bunches	1 0	3 0	Roses (indoor), per dozen	1 0	3 0
Chrysanthemums 12 bunches	0 0	0 0	„ Tea.. .. dozen	0 9	2 0
„ 12 bunches	0 0	0 0	„ red .. .. dozen	2 0	6 0
Cowslips .. doz. bunches	1 6	2 0	Primroses, Yellow, dozen bunches .. .. .	0 6	0 9
Cyclamen .. doz. bunches	0 4	0 6	Primroses, Double White, dozen bunches .. ..	1 0	2 0
Daffodils .. 12 bunches	1 6	6 0	Spiraea .. 12 sprays	9 6	1 0
Epiphyllum .. doz. bunches	0 0	0 0	Tropeolum .. 12 bunches	2 0	3 0
Encharis .. per dozen	4 0	8 0	Tuberose .. 12 bunches	1 6	2 0
Gardenias .. 12 bunches	2 0	6 0	Tulips .. dozen bunches	0 6	0 9
Hellebore .. doz. bunches	0 0	0 0	Violets .. 12 bunches	0 4	0 8
Hyacinths, Roman, 12 sprays	0 6	1 0	„ Czar, Fr., .. bunch	0 0	0 0
„ Dutch .. per box	1 6	5 0	„ Parme, French, per bunch .. .. .	3 0	5 0
Lapageria, white, 12 bunches	0 0	0 0			
Lapageria, red .. 12 bunches	1 0	2 0			



## THE FUTURE OF FARMING.

"AGRICULTURE, if it is again to thrive in islands, must begin at once to walk arm-in-arm with science. Thus far, the vast majority of English farmers have learnt their business by rule of thumb. Most of them have been brought up on farms occupied by their fathers, and when they succeed to possession of the farm they work it on the very same lines



laid down by their predecessors. In every other trade and profession some skilled training is deemed necessary to insure success in the crowded crush of modern times. Alone, however, among our pliers of industry the farmer generally sets to work without knowing more of science than the pig he drives to market. The days are at hand when good farming will depend upon an accurate acquaintance with chemistry, mechanics, meteorology, botany, geology, and many other sciences."

While not perhaps agreeing with every word of our quotation from an article on agriculture recently published in a daily paper, yet thoughtful earnest men will admit the truth and force of the general statement, and own that we must combine science with practice if we are to achieve any real improvement in farming. Is, then, farming capable of improvement? This is a question of so much importance that we may well ask our readers to give it due consideration, to weigh well their own practice and its results, and to see if faults of the past may not be avoided in present efforts for improvements in the future. Not lightly would we offer advice to men whose efforts are so heavily handicapped by a depression which deepens in intensity; but when they seek for relief in the form of a reduction of rent, while making just concessions, every possible effort at improvement in practice may fairly be required on their part.

Sound judgment and common sense enable a man to seize upon every coign of vantage, to miss no opportunity of improvement. Lessons are frequently before our eyes, their teaching is plain and unmistakeable; well will it be for us if we can understand and apply them to practice. For example, a few hours before writing this article we were at a large cattle market, where lambs were sold at 46s. apiece, and well-bred ewe hoggets at 63s. apiece. But there were very few lambs that reached that high price, and the high-priced hoggets were all from one famous flock-master. Surely the lesson here was not hard to understand! If early lambs, by careful tending and judicious feeding, command a price superior to the average of an ordinary hogget, one should make an effort to rear some; and if the rearing of early lambs was taken up so generally as to bring down prices, yet a falling off of 10s. apiece would still leave a fair margin of profit. Then, too, of well-bred ewe hoggets there should be more. If we keep sheep at all, why not have them as well bred as possible, if that represents a greater value—a higher profit? To do this we must be prepared to give much time and patience to careful selection in the formation of a flock. No man achieves fame as a flock-master by the mere expenditure of money. Of course there must be a certain outlay of capital at the outset, but that must be followed by selection and good management. In a recent discussion of the effects of the depression an unanimous opinion was expressed that if a farmer were driven by hard times to sell his ewe flock bankruptcy soon followed. Greatly do we regret seeing so many farms without sheep this spring. It may be said that scarcity of food compelled farmers to part with their flocks last autumn. Whatever was the cause, the effect must be disastrous both for tenant and landlord, pointing as it does unmistakeably to low farming. However low the price of mutton may be, cling to the sheep say we, and do not forget how much they do to sustain fertility in the land over which they pass. Sheep certainly must have a prominent place in the future of farming.

Cattle naturally occur to one in thinking about the best means of imparting fertility to the soil with a view to profitable farming. To keep cattle solely for such a purpose is decidedly wrong. Farmyard manure manufactured in cattle yards is certainly the most costly manure we can have. The expense of tending the cattle, carting the manure to heaps, which are usually turned over once, re-carting and spreading upon the land; all this mounts up to a serious item of expenditure, apart from the value of the straw used. "To farm well keep plenty of live stock" is a remark that is common enough in the mouths of farmers, and one still hears

it made with an amount of assurance which, at any rate, betokens confidence on the part of those who thus pin their faith to the muck heap. In farming of the future farmyard manure will cease to hold this prominent position. A certain quantity will probably still be used in root culture, but for general purposes artificial manures, green crops, and sheep-folding must be adopted. The prejudice against artificial manures will cease when it is made plain to farmers that by the correct use of them a saving can be effected and profits increased. All this will take time, for before the matter can be fully understood some knowledge must be had of the nature of soils, of the elements of plant food required for the full development of each crop, of the properties of chemical manures, and of the mixing of them in due proportions. Let the leading spirits of local agricultural associations remember that agriculture as a science is far from perfection, and that it falls within the scope of their society to make trial stations for the mutual benefit of its members.

(To be continued.)

#### WORK ON THE HOME FARM.

At length we have begun folding the ewes and lambs upon Rye. A new fold is prepared daily for them, into which the lambs run forward through lamb gates, the ewes following them one fold behind, Mangolds being given them there with the Rye, chaff, and some lamb food. Fresh lamb food is put into the troughs for the lambs in the forward fold when they enter it at about 3 P.M., the flock being taken out of the folds upon grass early in the morning. Greedily as the lambs eat the Rye they have no scour, the lamb food keeping them sound and lusty. When the nitrate of soda was put upon the Rye a small piece was left undressed with it in order to test the power of the manure. Nothing could be more satisfactory, the undressed part being comparatively meagre in growth, and of a pale green colour that looks positively sickly beside the deep green hue and rampant growth arising solely from this application of a hundred-weight of nitrate of soda per acre. The lesson though simple is clear and unmistakeable, and it might well be shown to a beginner as the first sure step in the use of chemical manures. Turning from the Rye to a piece of Winter Oats close by, we have before us an immense stride in such knowledge, for here we have an illustration, living and growing more forcible daily, of the immense value of the teaching of Professor Jamieson as evolved in the experimental stations in Sussex during the last five years. The Oats were sown last autumn with a half-dressing of home-mixed manures, the other half-dressing being given early this spring. The nitrate of soda used in this mixture has been considered a doubtful advantage, but several years' experience enables us to say that it is invaluable for the promotion of such a robust sturdy growth at once as enables the plants to withstand the effects of very cold weather, and there can be no question that the small quantity used is soon absorbed by the plants. Just as the growth starts into full activity again in spring comes the second dressing. The full value of the manures can only be realised in July, but even now we can see remarkable results. Another nine-acre field of Winter Oats was in Rye Grass last spring, the ewe flock were put upon it with cake and Mangolds, it was then ploughed and sown with White Mustard, as it was notoriously poor. The Mustard was ploughed in, the manure mixture sown with the Oats, and a spring dressing has been given. We shall watch the result closely, and we hope to gain a useful lesson from it, both for our own benefit and that of our readers. We have the harrows in use upon corn thick with seedling Charlock, and the hoes must now be briskly at work.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain	
	Baromet- er at 32 <sup>a</sup> and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1886.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
April.											
Sunday .....	18	29.887	45.4	43.9	N.E.	45.0	50.9	41.0	62.8	40.3	0.032
Monday .....	19	29.812	50.7	46.9	N.E.	44.2	60.8	39.6	107.7	36.9	—
Tuesday .....	20	29.832	51.4	48.7	N.E.	46.4	61.3	41.3	97.8	44.2	—
Wednesday .....	21	29.980	45.3	40.4	N.E.	46.2	51.4	41.2	75.2	38.8	—
Thursday .....	22	29.995	45.8	41.5	W.	45.5	55.1	39.4	98.9	37.3	—
Friday .....	23	30.024	52.7	47.8	E.	45.7	64.7	39.7	102.8	32.7	—
Saturday .....	24	30.042	52.6	49.3	E.	47.3	69.6	46.9	103.7	40.9	0.020
		29.939	49.1	45.5		45.3	60.0	41.7	92.6	38.7	0.052

#### REMARKS.

18th.—Dull and cold, with occasional showers.  
19th.—Fine, bright, and warm.  
20th.—Dull morning; fine and bright afternoon and evening.  
21st.—Cloud and sunshine in morning; the rest of the day dull.  
22nd.—A fine bright day.  
23rd.—Fine, bright, and warm, but with a rather penetrating easterly wind.  
24th.—Dull early; wet from 9 to 10 A.M.; fine and bright after 11 A.M.  
On the whole a bright, warm, and pleasant week. Temperature slightly above the average, and nearly 6° above that of the preceding week.—G. J. SYMONS.





## COMING EVENTS

6	TH	Royal Society at 4.50 P.M. Linnean Society at 8 P.M.
7	F	
8	S	Royal Botanic Society at 3.45 P.M.
9	SUN	2ND SUNDAY AFTER EASTER.
10	M	
11	TU	Royal Horticultural Society—Committee Meetings at 11 A.M.
12	W	Birmingham Exhibition of Orchids.

### THE COLONIAL AND INDIAN EXHIBITION.

**T**HREE great annual Exhibitions have been held at South Kensington, and have attracted some millions of visitors to London each year; but as it is obviously impossible to provide an indefinite series on so large a scale and sufficiently diversified to maintain the public interest, it appears very probable that the one announced for 1886 will conclude a gigantic and successful experiment. The Colonial and Indian Exhibition, which was formally opened by Her Majesty the Queen on Tuesday last, the 4th inst., was planned as an admirable successor to the "Fisheries," "Healtheries," and "Inventories," and one that by its scope and importance will create considerable interest throughout the British Empire. So vast an extent of the globe is covered by our Colonies and dependencies, such a variety of climate is represented, that a really characteristic display of their productions may be taken as an epitome of the world's industry. Anglo-Saxon energy and commercial aptitude have had a wide field for exercise and development, and visitors to the Indian and Colonial Exhibition will have an opportunity of judging some of the results.

A department with which our readers are most concerned—the vegetable products—is necessarily of leading importance at this Exhibition. The food imports to Great Britain are enormous, and as the home population increased so rapidly, it became necessary to encourage the cultivation of many useful plants in portions of the Empire where the climate is suitable, so that we should be less dependant upon the supplies of other countries. This course has been consistently pursued for many years, and with satisfactory results to the Colonies and the home country. A good proportion of the food products imported to this country now come from some of our dependencies, and the trade is rapidly increasing in many directions. Examples are afforded by Tea, Coffee, Cocoa, Sugar, Rice, and many others, the cultivation of which gives employment to millions of people in the East and West Indies, and which are shipped to England in vast quantities. In countries like India, where a great mass of the population is dependant upon agriculture for a living, the importance of a remunerative market for the produce cannot be over-estimated. For instance, it has been estimated that of the 180,000,000 male inhabitants of the country named 51,000,000 are dependant upon agricultural pursuits, and although the home consumption there is very great, in ordinary seasons there is also an abundant surplus for exportation. Some are also specially cultivated for sending out of the country, such as Opium, of which so much is purchased by the Chinese, but of the Indian vegetable products sent to this country one of the principal is Tea, something like 70,000,000 lbs., or a third of the entire supply, being received from the Indian plantations. Ceylon Coffee is another important production, an average of about 500,000 lbs. of berries being received here from that island. These are only examples, for many more might be cited with

reference to the West Indies, Australia, and other countries, but further particulars concerning them may be reserved to another occasion.

The Exhibition at South Kensington occupies the same buildings as the one last year, with a few minor alterations, but they have been rendered far more ornate, and in general appearance it will be the most attractive of the series. The galleries near the main entrance are devoted to East Indian products of all kinds, the central galleries are occupied with the Australian and other Colonial exhibits, the long gallery next to the gardens being appropriated to Canada. In connection with some of these an excellent idea has been carried out—namely, providing living representatives of the plants peculiar to the respective districts. For their reception spacious glass houses have been erected by Messrs. Dashwood & Co., Wimbledon, and Mr. S. Deards, Harlow, Essex, and they are being stocked with plants supplied by the principal London nurserymen and from the Royal Horticultural Society's Garden at Chiswick, where large numbers of Ferns have been received and grown for the purpose. In one or two of the trade collections, however, it is regrettable that plants have been introduced not strictly characteristic of the countries they are supposed to represent, and it seems as if the object has been to show all that succeed there in gardens, whether natives or not. This must be an oversight, and is certainly not due to any lack of typical plants, for most of the Colonial floras are exceptionally rich in species. Take the Cape of Good Hope for example; in a comparatively small district about 9000 species have been collected, including some of the most beautiful flowering plants that adorn our greenhouses—the *Ericas*, innumerable choice bulbs of the *Ixia*, *Sparaxis*, *Gladiolus* types, the pretty but neglected *Mesembryanthemums*, the useful *Pelargoniums*, from which we have obtained such an extensive group of decorative plants, and innumerable others. In Australia we have some very distinct forms of plant life. The *Acacias* are in strong force, the *Eucalyptuses*, the *Epacrises*, members of the *Protea* family, and hundreds of plants which are known in gardens as "hardwooded," somewhat delicate under culture, but the majority beautiful. From New Zealand, with a moister climate, we obtain many Ferns, but like some other islands widely separated from the mainland, the number of plants peculiar to it is proportionately great; thus of about 900 flowering plants discovered in New Zealand over 600 are confined to that country, 200 are Australian, and the remainder American. The total number of plants found and described in Australia and New Zealand together has been estimated at nearly 8000, and a good number of these have been introduced. The East and West Indian floras are especially rich in the most handsome of tropical plants, but except the Orchids these are not represented at the Exhibition by living specimens.

As at previous exhibitions an avenue runs at right angles with the gallery at the main entrance, connecting it with the Canadian Court at the upper part of the ground. It passes "Old London," facing which is now a great Indian Palace, affording a curious and interesting contrast; then a short distance beyond are two large glass houses, the one on the right devoted to plants from New South Wales, furnished by Messrs. J. Veitch & Sons, Chelsea, and the other occupied with Victorian plants from Chiswick. The latter is in a more forward state of preparation than any others in the Show, the Tree Ferns, *Todeas*, *Xanthorhæas*, and others having been very tastefully arranged by Mr. A. F. Barron. The fine *Dicksonias* received at Chiswick some time since have made excellent growth; the huge plants of *Todea barbara*, some of which are said to weigh 3000 lbs., are similarly healthy, and a series of little valleys and nooks have been formed that have a most refreshing appearance. In the New South Wales house are Palms, such as *Corypha australis*, *Areca Baueri*, numerous *Acacias*, *Araucarias*, *Eucalyptus*, *Banksias*, *Cordylines*, *Alsophilas*, *Gleichenias*, *Dammars*, and *Cycads*,



with others, to which additional notes will be devoted another time. Mr. W. Bull, Chelsea, has a house of Queensland plants, which include some beautiful and valuable rarities, of which only a few can be mentioned. The curious Cycad with bipinnate leaves, *Bowenia spectabilis*, is notable; the majestic *Doryanthes Palmeri*, the Moreton Bay Chestnut, *Castanospermum australe*, *Davidsonia pruriens*, several Palms, the elegant *Alsophila Rebeckæ* and the fragrant-leaved *Eucalyptus citriodora*, reminding us of the well-known *Aloysia*, are some of the principal features. There is also an extensive rockery and aviary constructed by Messrs. Dick Radclyffe & Co. for Australian plants and birds, which, when completed, will constitute an attractive portion of the exhibits in this department. There are also in several of the courts large numbers of coloured plates representing the flowers of the different Colonies, wax models of the fruits cultivated, and an important series of Australian woods cut like volumes of books and arranged in a case.

The largest house of all is that intended for New Zealand vegetation, which has been constructed by Mr. S. Deards. It is 140 feet long, 35 feet wide, and very lofty, with curved lean-to roof, and will require an extensive collection of plants to fill it. These are to come chiefly from Chiswick, and will consist largely of Ferns, with *Dracaenas*, the native Flax, (*Phormium tenax*), and others. When furnished it will have a particularly handsome appearance, as a steep bank rising to the back will form a diversified rockery that can be well seen from the path below. At the western side of the Exhibition is situated the Cape of Good Hope house, which has been filled by Messrs. E. G. Henderson & Son, Maida Vale, London. At the present time this has the brightest appearance of any, owing to the number of flowering plants employed, such as *Ericas*, *Pelargoniums*, *Oxalises*, and *Richardias*, to which are added, for ornament only, *Hydrangeas* and *Musk*. Some large examples of the Elephant's Foot, *Testudinaria elephantipes*, are remarkable, one weighing 12 cwt. During the season we may expect a bright succession of flowers in this house, which will be one of the most attractive to general visitors. The Natal house is furnished by the same firm, including chiefly foliage plants and some of economic value, such as the Sugar Cane, Tea, Coffee, and others that have been found to succeed in the Colony.

To the right of the main entrance Messrs. Sander & Co., St. Albans, have a house that is to be devoted to the Orchids from India and the Colonies, and provision is being made for a most effective floral display. Suitable pockets and nooks have been constructed on the walls, and in the centre, of rustic woodwork, in which the plants will be arranged as naturally and informally as possible.

In other departments, as in the West Indian galleries, coloured plates of plants are numerous. In several there are enlarged representations of the most important native plants painted on the walls, while in the Canadian Court is a massive trophy showing all the principal vegetable productions of the Dominion, either dried or preserved in spirit. These are a few of the features that horticulturists will find most interesting, but the attraction will be greatly increased when the arrangements are more nearly completed, for at present there is much to be done. Popular as the other exhibitions proved, it is very probable that with a fine season this will obtain still greater patronage, and it should enable the Commissioners to conclude the series with a substantial balance.

At the opening ceremony on Tuesday, which was one of the grandest of its kind seen in London for some years, the floral decorations were very effective. In the entrance-hall this was particularly noticeable, brilliant groups of *Azaleas* and *Cinerarias* being arranged with a due proportion of Palms and Ferns, very tastefully disposed, and much less formally than is usually the case with such groups. In other portions of the Exhibition Palms were freely employed, imparting quite a tropical appearance to the avenues and galleries, while Mr. Ware's beautiful collections of Daffodils, Tulips, Primulas, and other hardy flowers in the conserva-

tory were greatly admired. Around the Prince Consort statue, above the large fountain, were wreaths of scarlet Zonal *Pelargoniums* and white *Hyacinths*, with a background of Box shoots. As regards the general Exhibition wonderful progress has been made in the past few days, and apparently little now remains to complete it. The weather was exceedingly fine, and the season was commenced with a large attendance of visitors.

## CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 335.)

### PLANTS AND BLOOMS FOR MARKET.

THE demand for flowers has increased among all classes greatly during the last few years, and none excels *Chrysanthemums* either in a cut state or as dwarf plants for the market during the months of October, November, and December. They are grown in large numbers to meet the increasing demand, so suitable are they found to be as vase plants in towns where other plants at that time of the year are scarce, and those producing white flowers are most in favour. *Madame Desgrange* is an excellent variety for an early supply, followed by *James Salter*, deep lilac, and its white sport, *Lady Selborne*, which is much appreciated. Next comes *Elaine*, which in my opinion is the finest of all *Chrysanthemums* in purity of colour, substance, floriferousness, and duration of the blooms. *Sœur Melanie* is another grand variety, producing its white flowers freely. The best of the incurved section for cutting in large numbers is *Mrs. G. Rundle*, which, owing to the blooms being of medium size, can be used more conveniently for bouquets. *George Glenny*, pale primrose, is the same habit of growth as the former, and excellent for the same purpose where flowers other than white are required. *White Cedo Nulli* produces flowers in abundance, and being of good shape renders it extremely useful for cutting. The above are some of the best for producing flowers in quantities.

Various methods are adopted in their culture, but the following is one of the best:—Strike the cuttings in the usual way in February, top them when 4 inches high, and transfer them into 4-inch pots. The best position at this stage is in a cold frame, taking care to prevent their being drawn weakly; top the shoots again when they reach the same length. About the middle of May plant them out 3 feet apart on an open piece of ground, and if the soil is poor use some well-decayed manure. Should the weather be dry and hot during summer water the plants freely. Continue to top the branches till the middle of June: do not stake the branches upright, but allow them to lie on the ground. The last week in September cut around the plants with a spade, and in about a week lift them with a good ball of soil and plant as thickly as their size will allow in houses usually occupied in the summer with Cucumbers. The soil in which the latter had been growing will suit the *Chrysanthemums*, and save further trouble of preparing other compost. The advantage of not staking the branches upright will now be obvious, as houses like those named are generally deficient of head room; the branches will better lie on the beds, and will be near the glass also. When planted give a good soaking of water to the roots, and syringe the plants in the afternoon for a few days, and if they show signs of flagging apply a light shade until they have recovered from the check occasioned by the removal. It will be well to disbud to one flower on each stem on some of the plants, and by allowing all the flower buds to remain on others flowers of different sizes are obtained, which are very useful in making up wreaths or bouquets. When the roots commence penetrating the new soil give liquid manure freely to the plants, and ventilate on fine days. Plants grown in this manner yield abundance of flowers with but a minimum of labour as compared with the method of keeping them in pots all the summer, and the houses which are devoted to Cucumbers during the summer are generally available for the *Chrysanthemums* just about the time they are required.

*Mrs. G. Rundle* is particularly well adapted for this method of cultivation, its habit of growth being moderately strong and branching freely. *Elaine* is not so suited for this form of culture as the preceding, its habit of growth being too tall and upright, but for the production of blooms it is a charming variety. The following course of treatment answers the purpose well. Strike the cuttings in January, top them when 4 inches high, and continue to do so until about the 12th of June; early in the same month give them their final shift, placing two or three plants in an 11-inch pot. Each plant will have from twenty to thirty branches, from which remove all lateral growths as fast as they are produced, retain the first bud formed at the point of each branch, removing all other side buds. If the flower buds are not thinned the blooms will be poor in substance and "hollow eyed," and in cutting the centre flower which opens first many side buds will have to be sacrificed, as they do not



expand so early as the centre bud. Feed the plants liberally during the time the buds are swelling.

Snowdrop produces its flowers in masses, and owing to their small size they are very useful for buttonholes. It is best struck in February, topped twice, allowing all the stems to grow and perfect all its blossoms, 8-inch pots being large enough for this variety.

The best variety to flower in pots as a market plant is Sœur Melainie; its habit is dwarf, it retains its foliage in good condition for a long time, it is very floriferous, and, what is of great importance, its blooms expand together, thus making it very effective as a pot plant. Strike some cuttings in February and more in March; as soon as rooted shift them into 3-inch pots, placing them in a frame close to the glass, keeping the frame close for a few days. As soon as they are rooting freely into the new soil take out the point of the shoot; keep them sturdy by ventilating freely. Continue to top the shoots of those rooted in February until the middle of June. Transfer them into pots 6 or 7 inches in diameter the last week in June, and by this time the shoots will have broken from their last topping. Those rooted in March should be topped continually till the first week in July, and when they have broken into growth again place them into their largest pots, by this means a succession of flowers is obtained. Another method of growing them is in this way. At the end of April or early in May divide the old stools or plants of last year's growth, failing these use young plants of the current year's growth, place them out in good soil, allowing ample space between them, and about the 20th July take off the tops 5 inches long and insert them rather thickly in 4, 5, or 6-inch pots in a propagating case in a cool house in the same way as for cuttings early in the year, only in the present instance the temperature of the house is higher. Shade them from the sun for a few days till roots are emitted, gradually harden them and remove them outside on to a bed of ashes full in the sun; treat them liberally by supplying liquid manure freely to the roots. When the bloom buds show colour support the branches either by placing one stake in the centre and tying the shoots to it in the same way as Mignonette or Bouvardias, or place a neat stick to each stem, which is of great assistance to this variety, as owing to the weakness of its peduncles the flowers have a tendency to droop, but if separate stakes are placed to each shoot the blooms can be supported, the plants will be 1 foot to 1 foot 6 inches high. Another way to treat them is as follows:—At the end of June peg a few shoots down to the ground, when rooted take out their points, and when the first break occurs after topping cut them off and pot singly; these in small pots make useful little decorative plants.

If plants of the Rundle family are placed out in the same manner as advised and frequently topped till the middle of June, about the first week in August take off the points of the branches 6 inches long, placing six or seven in a 5-inch pot, treating them similarly to the last named, except that the buds are reduced to one on each shoot, these will then produce pretty little incurved flowers on plants 9 inches to 1 foot high. Dr. Macary, lilac Japanese, is a variety well suited to this treatment. Elaine is not a good variety to grow as a dwarf pot plant, it quickly runs up too tall, soon loses its foliage and does not open its flowers simultaneously, which as a market plant is a defect, but for growing to supply cut blooms it is unrivalled. The three varieties of Cedo Nulli, Aigle d'Or, La Viege, Patience, and Flame of the single sorts, and several Pompon and Anemone Pompons, are also suitable for cultivating as market pot plants. No doubt there are many others which are suitable also, but these are a few of the best, and the requirements of the neighbourhood with many other matters have to be considered before deciding upon two or three varieties to grow.

#### DWARF PLANTS.

The engraving (fig. 65) accompanying these notes represents a plant of Peter the Great 8 inches high, growing in a pot 3½ inches in diameter, producing one bloom, which measured 5 inches across. Chrysanthemums grown in this manner are not so often seen as their merits deserve, and they are well worthy of what little attention they require in producing them. They further show how adaptable the Chrysanthemum is for various purposes of decoration. These miniature plants are well suited for indoor decoration in vases or for standing on the side stages of the conservatory, where dwarf plants only are required. Attractive flowers can be had from plants growing in pots 2½ inches in diameter, but where larger blooms are coveted pots 4½ inches across are better; indeed, these are large enough for plants grown by this method for any purpose for which they may be required. From the first to the last week in August is the best time to take the cuttings. If they are inserted sooner the plants are apt to get too tall, and if taken much later the flowers are necessarily smaller. Where Chrysanthemums are grown for the production of large blooms some of the points

are almost sure to be broken off by various causes about the time stated, as, for instance, heavy rains, high winds, and birds alighting on them, shoots at this stage being very brittle. Such shoots should be formed into cuttings 4 inches long, and some may be 6 inches long. Dibble them firmly into sandy soil, using pots 2½ inches in diameter; water well to settle the soil securely about the cuttings, plunge them in a gentle hotbed, shading them carefully from the sun, syringe the foliage every afternoon of fine days, and by keeping the frame nearly close roots will be formed in about a month, when more air should be afforded, increasing the supply until the plants will bear full exposure without flagging. The best position for them at that stage of their growth is on a shelf close to the glass in a cool house. If it is desirable to have large blooms shift the plants into pots of the size previously named, using rich soil and potting firmly. By this method cuttings can



Fig. 65.—A Dwarf Chrysanthemum.

only be procured by chance, and perhaps the varieties available are not those which are specially required, but it is better to utilise those shoots broken by accident than to destroy them. Two other systems of producing cuttings I will describe. Where plants are grown by what is termed the "big bloom" method, instead of allowing three branches on each plant have four, and when the buds form on the points of the shoots toward the end of August the extra shoots can be topped and cuttings inserted. If the lower part of the same branch is cut off, the plant will be none the worse for growing four branches instead of three. Where a large number of dwarf plants are required the following is a good method of preparing the stock:—Insert cuttings in the usual way in January, pot the plants as required; do not top them, but train up four shoots from each plant at the first break, removing all other side branches as fast as they appear. Secure the plants to one stake during their growth. When the bloom buds form, as they will at the time named, cut off the points, insert them, and treat as advised for the others. Nearly all varieties are suitable for this method, preference being given to those which are not weak in growth, avoiding all that have slender peduncles, the stout erect growers being best, as they require no support when in bloom.—E. MOLYNEUX.

#### THOUGHTS ON CURRENT TOPICS.

IF I have not recorded any passing thoughts on the topics of the past few weeks it is not because there has been nothing worthy of comment, but rather because I have felt that space would be better occupied with other matter, of which, judging by a notification that has appeared, the



Editor has had as much as he could deal with. Perhaps he is in the same position now, and if so my jottings must wait their turn, as they have waited before—that is, if they are worth preserving for filling a blank that a few odds and ends may occupy.

I THINK a gardening paper is very much like a garden, or it ought to be—that is, the space should be occupied much in the same way in both cases, the greater part devoted to that which is essentially useful, a due proportion being accorded to what is mainly ornamental (though there is often great use in ornament), with a few patches here and there, with something just a little better than nothing for the sake of variety. I am content to plant these patches, light work being more to my taste than heavy digging, and short spells than continuous labour at the same task, whether in the garden or that reflex of it, the gardeners' paper.

I HAVE, perhaps, done every kind of work that is found in gardens, "single-handed" and upwards, from digging drains to dressing dinner tables, sowing Onions to potting Orchids, planting Vines to earthing Celery; and it is because of this that reading becomes enjoyable and writing pleasant. I never read an article without imagining the writer of it at work on the subject of which he is treating. I have in my mind's eye such general practicalists as Messrs. Abbey, Bardney, Iggulden, and men of that stamp (I think "men" is permissible) planning and working. I like to picture "D., Deal," tending and noting the properties of his flowers; Mr. Horner amongst his Auriculas, about which he writes so delightfully; Mr. Castle scrutinising the Orchids; "D." examining with painstaking care the tops of Primulas; and Dr. Masters, with philosophic instinct, dissecting their roots; Mr. Wolley Dod among the Daffodils; and Mr. Shirley Hibberd covered with dust in rummaging through ancient books in search of the life history of flowers. And when we further consider that such work and researches are to a large extent conducted for the benefit of the others, it is impossible to suppress a feeling of pity for those gardeners who do not read, and whose minds are necessarily swamped and stunted by want of exercise.

I HAVE been reading gardening literature for forty years, and am grateful to all who have given of their store of knowledge, and the more so because it is certain they have not become the poorer through the giving; nay, they have grown richer, for in searching for information to impart to others they have found that which, but for the effort, would have been lost to themselves. I would like young gardeners to think of this, and in their endeavours towards self-improvement not to trust to reading alone, but test what they read, as far as their opportunities allow, and record their practice and its results. That is the safe way to acquire sound knowledge. But there is the dreaded criticism. Let no one fear it, but remember that it has, more than anything, made our greatest representative men very much what they are. But I must curb my thoughts, and may not inappropriately draw up at an example of the working of what I have tried to impress.

JUDGING "A. L. G." solely by his writings, I am strongly inclined to regard him as a young gardener, and the younger he is the more do his articles redound to his credit. He has, by opposing the supposed views of one of the best gardeners, and an experienced writer, won his respect. As Mr. Bardney observes on page 316, our excellent critic "is not a mere imitator, but exercises his thinking powers, and strikes out a course for himself." We want more of such thinkers and experimenters. "A. L. G.'s" experiment, as recorded on page 290, on the evolution of ammonia through the action of lime, is interesting. I think I pointed out last year that the presence of lime in soil could be detected by an acid, and this is now corroborated; but I have used litmus paper instead of a feather dipped in vinegar to detect the escape of ammonia. May I venture a suggestion that ardent young scientists are sometimes apt to overlook the practical bearings of their experiments. The very evolution of ammonia that your correspondent regards as waste, I regard, in the case of manure-poisoned soil of either a Vine border or plot of ground under cropping, as a distinct gain. When Mr. Bardney found his Grapes improve so markedly after an application of lime; when the late Mr. Speed of Chatsworth found exactly the same almost magical change; when Mr. Taylor of Longleat found lime of such service, they surely did not do wrong in applying it. The ammonia then liberated was absorbed by the crops; it was sealed before. The Vines were in the condition of a hungry man who had lost the key of his larder. The lime, in the instances referred to, was the key to the nutriment locked in the earth, and it was more, for it was food in itself that was needed by the Vines. Let growing crops be experimented with in rich soil, and a reasonable amount of salts of ammonia applied, and there will be no such waste as must follow when an excess is applied to bare soil. The crops will take care of that; and further, if 10 per cent of lime and 1 of sulphate of ammonia, which is enough for good loam, be mixed with soil and covered with an inch or two of damp earth, there will not be the waste that was found in the cannister experiment, and even sensitive reddened litmus paper will scarcely be tinged with blue. The excess used by "A. L. G." was waste, as it always is, and must be under such circumstances. The practical point is this. If a lady wants a sniff of smelling salts to revive her in a heated room, is she to refrain from drawing the cork because a portion of the ammonia may escape into the air?

I THINK it is possible Mr. Bardney may have applied more lime to his Vine borders than was absolutely necessary. It is difficult to determine the exact minimum, and lime is cheap; but it is certain he did not use too

much when he cured clubbing in the kitchen garden and made the land produce at the least fourfold that it did two years previously. Mr. Bardney has many visitors. I have been one of the units and seen the change effected in the Grapes and the Cabbages through the application of lime to limeless soil. I have examined Grapes in many gardens and from Vines grown in nearly all sorts of soil, but never found them stoned like the last I examined at Norris Green. I thought then rather too much lime had been used, though on that point I may be wrong, for the quality and flavour were superb.

I FEEL sure "A. L. G." will not object to my "treatment" of the case. I have certainly no wish to prove him wrong. That is not my object at all; but it is necessary to refer to the expression of his belief that "in sandy soil where lime is deficient bones will furnish all the lime necessary." They may, but at what cost? The bones used at Longleat did not; nor would half-inch bones have done so if four times the quantity had been used. Mr. Taylor gave the necessary lime in a ten times cheaper form than could possibly have been applied in half-inch bones. Let me here say I do not believe very much in the economy of bones in lumps. The proper mechanical condition of soil can be effected in a cheaper way; for instance, with charcoal, lime rubbish, and crushed bricks. The most economical and effective way to apply bones is in powder, and the finer this is the better, steamed bone flour having the advantage, because it can be ground finer than that from raw bones. I believe a great virtue (but not the only one) of Jensen's Fish Potash manure consists in its fineness. I have not seen Mr. Thomson's famed Vine manure nor heard it described, but I venture an opinion that it is not in such large particles as "half-inch bones."

I MUST have just one more sentence about lime. Your correspondent in alluding to the per-centage of lime in fertile soil, asks if it does not occur to me that it is in its carbonate form? Certainly. It could not very well be otherwise, and I am not aware that it is in the power of man to prevent lime that is slaked, spread on the ground, and lightly pointed in absorbing carbonic acid, and what is that but making chalk, which "A. L. G." prefers? It is the only practical way in which chalk can be procured in many districts, and it is very certain that lime as prepared and applied in the manner indicated is not pure. There is not, in my opinion, nearly so much difference between the practical gardener as represented by Mr. Bardney, and the scientific gardener as represented by "A. L. G.", as at first sight appears. I do not mean that the latter is not practical as well as scientific, and the former not scientific as well as practical, but merely refer to the predominating characteristics. There has been a misunderstanding of circumstances and terms, but no harm has resulted through that, and we are all, perhaps, just a little wiser than we were three months ago.

As to manuring Vine borders until they become a mass of humus it is, I believe, a mistake, and if lime be not added such borders become practically effete. Vine borders, in not a few instances, are hurried with wet manure at the wrong time—namely, in winter, making them sodden then and keeping them cold in spring. A lighter and drier covering is better for excluding frost, and the rich dressing is the most effective as a conservator of moisture in hot weather, and as preventing the sun and consequent drought driving the roots downwards. Soil as wet as a puddle during the cold months and as dry as a lime basket in the hot ones is utterly wrong, yet that is the actual state of hundreds of Vine borders. Support can be given to Vines far more effectively than in the form of heavy winter dressings of rank farmyard manure—namely, by approved concentrated or so-called "artificial" fertilisers, and more of these will be used in the future than in the past in gardens and on farms alike. Of all the fields open for useful thought this is the widest one I know, so wide that I dare not even enter it at the present time; and in leaving it let me express a hope that gardeners read attentively the farm articles in the Journal, for in them I often see most valuable information. Their underlying principle is this—good tilth, good seed, no weeds, and the greatest amount of immediately available nutriment applied in the smallest compass, and in proportions best adapted for respective crops. Let cultivators master that principle, and the so-called worn-out land of old England will yet be made young again, and its food-yielding resources enormously increased.

I WAS rather sorry to see that a "Young Practicalist" made a slight mistake on page 250 in his critique on science *versus* practice in horticulture. It appeared on the 1st of April. He had a very good case, but made a stronger one for opponents by accepting as facts certain statements which he believed authentic. There is perhaps a natural disposition to give credence to rumours that appear to sustain a preconceived theory. There is also a danger of young reformers using the sledge hammer too freely. At the same time I cannot help regretting that the "Young Practicalist's" position does not admit of his discussing the subject further. Britishers ought to be the last persons in the world to fear competition. They penetrate everywhere and compete in all nations, in many instances with great success. It is as futile as it is discourteous to speak disdainfully of "foreigners" as a body. There are as great-minded and good-hearted amongst them as with us, and on both sides individuals that cannot be regarded as patterns to follow. Let us excel the best of them if we can. International jealousies are dying by degrees, and the sooner they are all hurried the better it will be for the world. At the same time I am emboldened to say that nowhere is better all-round gardening to be seen than in this country as conducted by natives so wanting in "accomplishments." Let young men strive for higher acquirements.



The possession of them or knowledge in drawing, botany, chemistry, and vegetable physiology is not incompatible with a will to labour; and work they certainly must, or all their attainments will be useless. Some of the best gardeners in Britain, or in Europe, are in the position of the individual who boasted in respect to his linguistic power that he could "hold his tongue in seven languages;" but no one can say they would be less competent if they "knew a little Latin," and could "make out the meaning" of French and German catalogues and books. Undoubtedly the possession of languages other than their own gives to the possessors an advantage in the battle of life.

"W. P. R." appeals to me in what on the face of it appears a very hard case in respect to the extortion of premiums from probationary gardeners. Perhaps the best advice I can give to your correspondent is that he send a copy of the Journal of last week and this to the gardener in question, as peradventure he may have something to say that will put a slightly different complexion on the matter. It is never safe to found a charge on something that is "understood," and no opinion worth giving can be expressed without hearing both sides of a case. If such alleged extortion is habitual the "teacher" cannot long remain in obscurity, nor ought he, and it is very certain that no "noble earl" would permit the practice to be continued under the circumstances indicated on page 342, for he would cease to be "noble" if he did so. I will now wait the issue of events.

I HAD almost forgotten to say what I think about a new vegetable that has reached me from Burghley—Chou de Gilbert. Six heads came by post, and I will describe one of them. It was 6 inches long and the same in circumference, just the shape of a turned-in Cos Lettuce with the outer leaves removed. At the base were elongated knobs, like good-size Brussels Sprouts, firm, but not hard, and in dissecting these sprouts a very distinct but very diminutive Cauliflower-like conglomeration of flower buds were packed, a sort of concrete inflorescence closely enveloped in leaves. On the main head being cut longitudinally, a knob was found ensconced in the axil of every leaf, the knobs diminishing in size, as might be expected, as they approached the top of the head, this terminating in an enlarged quasi Cauliflower. I have seen nothing like it. It is quite dissimilar from Chou de Burghley. I see Mr. Abbey describes Chou de Gilbert on page 292 as a Cabbage-Brussels Sprouts. The subject of my examination, was a Broccoli-Brussels Sprout. Perhaps they do not all develop alike. I simply state exactly what I found. When cooked the quality was unexceptionable. After a winter like the last, and with common Turnip, tops 2d. per lb., wetted to "keep them fresh," and possibly make them weigh well, Chou de Gilbert must be regarded as a vegetable of sterling usefulness. At least, that is the verdict of—A THINKER.

### ORCHID LITERATURE.

THE literature of Orchids is extensive but widely scattered through botanical works, and the number of books devoted to the family is not so large as might be imagined. In the following list I have included all I could gain any information about, also giving the titles of the principal works containing coloured plates of Orchids. Many woodcut illustrations have also appeared in the horticultural periodicals, and a great many species have been described by Reichenbach in the *Gardeners' Chronicle*. The chief authority for the genera is Lindley, whose characters are accepted for 114 out of the 334 genera enumerated in Hooker and Bentham's "Genera Plantarum." Whilst Lindley was editor of Edwards' "Botanical Register" many Orchids were figured and described in that work. Bateman's, Lindley's, and Warner's works are magnificent productions, but necessarily very costly.

Aubert du Petit-Thouars.—"Histoire des Orchidées des trois îles d'Afrique." Paris, 1822. 4to.

Baldwin, Henry.—"Orchids of New England." 4to, sixty-two illustrations. United States, America.

Bateman, J.—"Second Century of Orchidaceous Plants." Royal 4to, 100 coloured plates from Curtis's "Botanical Magazine." London, 1864-70. "Monograph of Odontoglossum." Thirty coloured plates and wood engravings. Imperial folio. London, 1864-74. "Orchidaceæ of Mexico and Guatemala." Elephant folio. London, 1837-43.

Bauer, Franz, and Notes by J. Lindley.—"Illustrations of Orchideous Plants." London, 1830-38. Folio.

Beer, J. G.—"Praktische Studien an der Familie der Orchideen." Vienna, 1854. 8vo.

Bentham, G.—Pages 281-360, "Notes on Orchidæ," Journal of the Linnean Society, vol. xviii. 1881.

Bentham, G., and Hooker, J. D.—"Orchidæ." "Genera Plantarum," vol. iii., part 2, pp. 460-636. 334 genera. London, 1883.

Breda.—"Genera et Species Orchidearum et Asclepiadearum Javæ." Folio. 1827 (Pritzell).

Britten, J., and W. H. Gower.—"Orchids for Amateurs." London, 1878. 8vo.

Blume.—"Collection des Orchidées les plus remarquables de l'Archipel Indien." Paris, 1864. Folio. "Flora Javæ, series nova, Orchidæ." Folio. 1858. "Javaanische Orchideen." Batavia, 1825. Folio.

Brook & Co.—"Descriptive Catalogue of the Fairfield Orchids." 8vo. 1872.

Burbidge, F. W.—"Cool Orchids, and How to Grow Them." London. Three coloured plates, crown 8vo. 1874.

Curtis's Botanical Magazine.—London, 1786 to the present time. 6872 plates. Published monthly.

Darwin, Charles.—"Fertilisation of Orchids." London. First edition 1862. 8vo. Second edition 1877. 8vo.

Edwards' Botanical Register.—London, 1815-1847.

Fitzgerald, R. D.—"Australian Orchids." 1874-1885. Sydney, New South Wales. Folio.

Henshall, John.—"Practical Treatise on the Cultivation of Orchidaceous Plants." Royal 8vo. 1845. In German 1846.

Hooker, W. J.—"Century of Orchidaceous Plants." London, 1846. 4to. Jennings, S.—"Orchids, and How to Grow Them in India and Other Tropical Countries." Forty-eight coloured plates. London. Royal 4to. 1875.

Lexarza, J.—"Orchidianum opusculum." Forms part of "La Llave and Lexarza." Nov. reg. desc. fasc. 11, with separate register.

Linden, J.—"Lindenia." "Pescatorea, Iconographie des Orchidées de la Collection de M. Pescatore au Château de la Celle, St. Cloud." Brussels, 1855-1860. Folio.

Lindley, J.—"Folia Orchidacea, Enumeration of the Known Species of Orchids." Nine parts (all published). London, 1852-59. 8vo. "Genera and Species of Orchidaceous Plants." London. 8vo. 1830-40. "Sertum Orchidaceum." London. Folio. 1838.

Loddiges' Botanical Cabinet.—2000 plates, many of Orchids. London, 1818-1833.

Lyons, J. C.—"Management of Orchideous Plants." With catalogue of 1000. London, 1845. 8vo.

Miner, H. S.—"Orchids, the Royal Family of Plants." Twenty-four coloured plates. Folio. 1885.

Moore, Thomas.—"Illustrations of Orchidaceous Plants." London, 1851. 8vo.

Mutel, A.—"Orchidées Nouvelles." Paris, 1842. 4to.

Paxton's Magazine of Botany. London, 1834-1849.

Puydt, E. de.—"Les Orchidées." Fifty coloured plates, 244 engravings. Royal 8vo. Paris, 1880.

Rand, E. S.—"Orchids." New York, 1876. 8vo.

Reichenbach, J. H. G.—"Xenia Orchidacea." Leipzig, 1858. 4to.

Richard, M. Achille.—"Monographie des Orchidées des Îles de France et de Bourbon." Paris, 1828. 4to. "Monographie des Orchidées recueillies sur la Chaîne des Nilgherries par M. Perrottet." Paris, 1841. 4to.

Richard Achille and Galeotti, H.—"Monographie des Orchidées Mexicaines." 4to. 1884. "Orchidographie Mexicaine." 8vo. 1845.

Richard, L. C.—"Des Orchides europeis. annotationes." Paris, 1817.

Rodrigues, J. Barboza.—"Structure des Orchidées Rio de Janeiro." 1833. "Genera et Species Orchidearum novarum Sebastianopolis." 1832.

Vriese, W. H. de.—"Illustrations d'Orchidées." La Haye, 1854. Fol. Walpers' Annales Botanices Systematicæ.—Tomus 6, Lipsie, 1861, pp. 167 to 933 Orchides, by H. G. Reichenbach.

Warner, R.—"Select Orchidaceous Plants." First series. London. Folio. 1862. Second series, 1865. Third series, 1877.

Williams, B. S.—"Orchid Manual." London. First edition, 1852. Sixth edition, 1885.

Williams, Warner, and Moore.—"Orchid Album." London. Royal 4to. Monthly since 1881.—L. C.

### THE ROYAL HORTICULTURAL SOCIETY.

I HAVE read with much interest your article on the position of the Royal Horticultural Society on page 327, and thoroughly endorse your opinion that it must for its life's sake shake itself free from its present condition of bondage. At present it appears to be handicapped by the Exhibition Commissioners, by the fashionable Fellows, and by a preponderance of members of the Council, who nurse their chains and fear to tear themselves away. But as you point out, the real backbone of the Society is, and should be, Fellows who are practical gardeners and lovers of plants; not those who only make use of the Society for an occasional afternoon's amusement. Previous moves of the habitation of the Society seem to have been too pretentious. What seems to me required in London is a home, where should be located the library, committee rooms, and a hall or room large enough to hold the fortnightly meetings, and no doubt such a home might be obtained without incurring a very great outlay; in fact, it should be at a comparatively moderate rent, so that the operations of the Society at Chiswick and in holding provincial shows should not be hampered. If any such programme were carried out I for one should feel it my duty to double my subscription, and no doubt a large number of real plant lovers would do likewise. I fear I have encroached upon your valuable space, but my excuse must be my anxiety to assist in causing other members to act.—F. R. H. S.

### GARDENERS AND PREMIUMS.

A CORRESPONDENT signing himself "W. P. R." at page 342, brings a serious indictment in regard to the above subject against some responsible person in the employ of an earl—presumably the head gardener—and proceeds to cite his case, or rather the young man's case, distinctly specifying it as a "very hard case," and "representative of many others from the same establishment." What a pity it is he is so careful not to mention names, for surely if his "hard case" is but one of "many others from the same establishment," it is time that gardener and that establishment were better known, for the good of young gardeners in particular, else what is the use of "recording" the case? But stop! I am going too fast; perhaps the case is not what it seems, and perhaps the "representative" of "many others" may not be so black as he is painted. Be that as it may, the "case" quoted forcibly reminds me of a few "facts" that have come to my knowledge in regard to a similar "case," and it will serve to give your readers some idea of what the "other side" of "W. P. R.'s" "case" may possibly be.

Some months ago a young man in the south of England, an entire stranger, wrote to me asking if I could help him into a situation, as owing to domestic affairs he could no longer remain at home, where he had been assisting to manage his father's business, and also stating that he had



been foreman a specified length of time in a certain establishment, and that he could have good references from there and elsewhere. Thinking that the man might have to leave home through domestic affliction, I decided to do what I could for him, and wrote to him for his references, but only one was forthcoming. Knowing nothing in the neighbourhood likely to suit this person, I sent on his first letter to me to an old and valued friend—a gardener of undoubted ability and of unquestionable integrity, and respected and appreciated, so far as I know with one exception, by all who know him—who I thought had, or was likely to have, a vacancy. My friend, taking the same view as myself in regard to his letter of application, thought it would be an act of charity to find him employment. He accordingly wrote to the young man, distinctly stating the kind of work he would be required to do, and the terms upon which he could be engaged, one of which was the payment of £5 as a premium for an unspecified length of time, but which, as a fact, covers three years, a premium which no reasonable person will call exorbitant. The young man replied, and in his letter called this £5 “a large sum,” made particular inquiries as to working hours, inquired if he might have flowers when he wanted them to send away, and distinctly stated that he could “stay at home no longer,” because—now mark this—his “father” was “so servile.” My friend replied to this letter in full, administering such a rebuke that would have decided 99 per cent. of ordinary mortals not to engage, but at the same time frankly stating that if he, the young man, went, and did his duty by him, the gardener, he, the gardener, would do his duty to him.

In due time the man entered upon his duties, and was found to be incapable of performing satisfactorily the work that he was engaged to do; he was then set to do other work, and ultimately sent to another part of the estate. I am informed that he wore gloves when stoking, wore a ring on his finger when at work, and in many ways demonstrated that he was altogether too big for his situation, and attracted the attention of the noble owner of the estate so much by his dress and manners in general as to cause him to exclaim to his lady and the head gardener, who was attending them, that “Young gardeners appear to be getting up in the world.” It is also stated that he would not “turn out” at the same time as the other men, coolly ignoring the foreman’s authority. The effect this sort of thing has upon discipline amongst a large staff of men many head gardeners and others well know. Ultimately he received notice to leave, but was allowed to stay on some time, in order that he might suit himself with another situation. As time passed on and he did not go, my friend had no alternative but to dismiss him with the usual notice.

During the time the young man was there, which was several months, I believe the head gardener deducted about 24s. from his wages—the custom in that establishment being for the £5 to be paid during the first year, the second and third years to be free—about a due proportion of the premium to be paid. From the time of his dismissal until now he has been a perfect nuisance, by writing bullying and threatening letters (all of which I have seen) demanding a return of all or part of the money deducted as a premium, and compensation for dismissal, under pains of exposure in the Press and a letter of complaint to “her ladyship,” under all of which the “victim” hears up most cheerfully. So far as I know the matter is not settled yet, but if the young man thinks he has a “case” he knows the remedy.

Similar instances to the foregoing do arise sometimes, but I am thankful to be able to say, to the credit of young gardeners and the comfort of head gardeners, they are few and far between. Like “W. P. R.,” I will not now either defend or condemn the system of premiums, but content myself by citing a case showing up the other side.—OBSERVER.

#### MR. GEO. MOUNT’S NURSERY, CANTERBURY.

It will be remembered that some years ago I was enabled to record the wonderful success that Mr. George Mount had obtained from a small number of Rose trees which he grew at his small garden at Harbledown, near Canterbury. He was then an amateur in the true sense of the word, loving his Roses and tending them carefully himself, and doing all the work connected with them. This “harmonious Blacksmith,” as we are wont to call him, for he was a son of Vulcan, and also organist, has no small amount of energy, although had health, which would weigh down many, has not crippled his exertions or damped his ambition. His achievements in that year (1882) in which, after exhibiting, from about 400 trees, twenty-eight times, he gained twenty-seven prizes and a silver cup, of which nineteen were firsts, seemed to have added a fresh stimulant to his zeal, and finding that he could not with any safety go on as an amateur, he determined to try what he could do as a nurseryman. He therefore rented a piece of ground at St. Dunstan’s, on the outskirts of Canterbury, and set to work with his accustomed vigour. Having both a carpenter’s and a blacksmith’s business, he was enabled to put up his houses at a comparatively small cost, or, at any rate, much more cheaply than he could have otherwise done, and as with most persons who commence the putting up of glass, he is constantly increasing his houses.

I may say that his object has not been so much the growing of plants for sale, as that of growing them for cut blooms, and hence his houses are mainly filled with Tea and Noisette Roses, and predominant amongst them that ever acceptable Rose, *Maréchal Niel*. Like the cannons in the charge of the Light Brigade, it is to be found everywhere—on the back and in the front of the houses, enjoying the protection and warmth of the glass, on walls facing east and walls facing west, on standards, and on dwarfs in the open. At this time of the year of course there was nothing

to be seen outside, but I have never seen a more healthy and vigorous lot of plants than those which were rapidly coming into bloom under glass. There is an idea entertained by some that strains have something to do with the blooming character, and a strain known about here as Mrs. Cooper has been considered a very vigorous and floriferous one. Nothing could be finer at any rate than the foliage, or more abundant than the blooms, which hang in thick clusters on the plants trained on the front of one of these houses. The more forward blooms were being sent up to London, while large numbers were rapidly pushing their way. The price which they bring is not so remunerative as it used to be, for while the demand is as great as ever, the supply has largely increased, and the depression in trade, which affects everything, affects even blooms of *Maréchal Niel*.

There is in the first house which Mr. Mount put up a fine lot of other Tea Roses, Jean Ducher, Marie Van Houtte, *Etoile de Lyon*, *Souvenir d’Elise*, &c., &c., which are grown for the same purpose. Another house has just been planted with the same, while out of doors a border has been covered with framework on which lights are placed, protecting them from the frost. These lights are now taken off, and the Roses will come in as intermediate between those planted in the house and those quite in the open. These, too, are vigorous; some have been cut by the frost, but not so much so as I should have expected, while Mr. Mount told me that in his sheltered garden at Harbledown they had been very much cut, owing perhaps to the nearness of water, but the effect of severe winters on Roses is a complex question, which may some day form the subject of a symposium for the “Year Book.” Altogether, I think Mr. Mount’s Rose garden, which is on capital loam, promises to be a success. He has had two very trying years since he began his work at St. Dunstan’s, the extreme drought, especially in such soil as his, having sorely tried his plants.

Mr. Mount does not intend to confine himself exclusively to Roses, although they form the great *pièce de résistance*. He has numerous beds of Hellebores, which are to be utilised for the same purpose. A city so abounding in smoke is likely to require a good many of these lovely white flowers at Christmas time, and they will doubtless find a ready sale. He is also going in largely for Narcissus for the same purpose. The same cause has led him to enter largely into the growth of Chrysanthemums, especially the late-flowering white kinds, such as *Duchess of Teck*, *Ethel*, &c., and a large number of young promising plants showed that he is determined in this, as in other things, not to be behindhand.

Although there is nothing very remarkable about this nursery, yet I have thought that many who know our energetic friend will be glad to hear that he is in a fair way of carrying out, as a grower for sale, the success he achieved as an amateur, and I shall be much surprised if we do hear of him again in the exhibition of his favourite flower, for although he is not likely to measure himself with the giants of the Rose world, I yet think that he will take a fair place amongst those who aspire to make some mark, and that, especially in Teas, we shall see in the future proofs of his skill, intelligence, and industry.—D., *Deal*.



As will be seen from a notice in our advertisement columns, Mr. B. S. Williams, Victoria and Paradise Nurseries, has provided an EXHIBITION OF ORCHIDS AT UPPER HOLLOWAY, which will be shortly opened, and continue open until the end of June. The house employed for the purpose is a spacious structure, 100 feet long and 22 feet wide, and those who saw the beautiful display provided last year will have some idea of what to expect this season, and which will attract a great number of visitors.

— WE have received an extremely large spathe of *ANTHURIUM ANDREANUM* from a plant grown by Mr. Cowling, gardener to R. Ruston, Esq., M.P., Monk’s Manor, Lincoln. It is 8 inches broad across the upper part and 8½ inches deep, very bright in colour, but with a greenish tinge round the upper margin.

— THE Committee of the CANTERBURY ROSE SOCIETY have decided to alter the date of their Exhibition from Thursday, July 1st, to Tuesday, June 29th, in order to avoid clashing with Reigate.

— “D., *Deal*,” writes:—“I have to thank ‘T. W. G.’ for noticing my slip of the pen with regard to ROSE SUNSET. May I also notice an hiatus in my paper on “Auriculas at South Kensington,” whether my fault or not I cannot say. After “it seems impossible” there should have been added, “to get these bright violet-purple tints of body colour with an orange or yellow tube.”

— “LANARKSHIRE BEE-KEEPER” writes:—“In the remarks by



"W. J." on the late Mr. ANDREW TURNBULL of Bothwell Castle Gardens, he says, 'It is generally known that Mr. Turnbull raised more fine seedling Heaths than any man, and that of these plants he was a most successful cultivator.' It may not be uninteresting to many of your readers to know what Mr. Turnbull said to me when speaking on the subject of crossing and hybridising, as follows:—'Notwithstanding all the time spent in cross-fertilising and hybridising, all his best seedlings without exception were haphazard seedlings,' finishing his sentence with one of his hearty laughs, so characteristic of that gentleman, with whom I had been on intimate terms for more than forty years."

— WE are informed that the BROCKHAM ROSE ASSOCIATION have accepted the invitation of Wildman Catley, Esq., of Oakdene, to hold their show at The Holmwood, near Dorking (station L. B. & S. C.) on Saturday, July 3rd, 1886.

— MR. R. BEGBIE, The Gardens, Ravensbury, Ascot, Berks, writes as follows regarding THE WEATHER:—"Temperature this morning (May 1st) 15° of frost registered by Negretti and Zambra's thermometers. Gooseberries and Pears injured greatly; also Rhubarb, Strawberries, and tender growths generally." In several districts around London from 6° to 8° of frost were registered on the same morning, and it is to be feared that the fruit blossom has suffered seriously. Numbers of Pear flowers we have examined are black in the centre, though apparently uninjured externally.

— GARDENING APPOINTMENT.—Mr. Angus MacLeod, late foreman at Wemyss Castle, Fifeshire, has been appointed gardener to the Marquis of Headfort, Headfort House, Kells, Co. Meath.

— THE LEEDS PAXTON SOCIETY held its second ordinary meeting on Saturday, 17th ult. (Chairman, Mr. W. Smith, gardener to W. Green, Esq., Roundhay), when a paper was read by Mr. J. Franklin, gardener to J. Barron, Esq., late M.P. for the borough, "On the Habit and Treatment of the Calanthes." Mr. Franklin being a known successful grower there was a large attendance. After many questions had been asked and answered, a vote of thanks, proposed by Mr. W. Crossley and seconded by Mr. Stewart, and unanimously carried, closed the meeting. The Society has been established to promote superior culture, the exhibition of horticultural products at its meetings, and the reading of essays and discussions thereon by the members. It merits support and success.

— MESSRS. W. RICHARDSON & Co., Darlington, have been awarded a silver medal by the Society of Architects for a PATENT SYSTEM OF VENTILATION TO HORTICULTURAL HOUSES at the Architectural and Building Trades Exhibition, London.

— THE BEDS OF BULBS IN THE LONDON PARKS are now at their best, and although the plants made such slow progress at first, they have proved much better than seemed likely to be the case a few weeks ago. In Hyde Park, St. James's Park, and Regent's Park the beds are bright, but the most effective we have seen are those in the Royal Gardens, Kew. Near the Wood Museum is a circle, the centre occupied with Tulip Keizerskroon, extremely fine, margined with three lines of the fine white Hyacinth Baroress Van Tuyll and the purple Crocus David Rizzio, which, however, is now out of flower. Near the greenhouse (No. 4) are four beds, two at opposite corners being planted with Tulips, Artus (scarlet) and White Pottebakker in the centre alternately, edged with Yellow Prince and Standard Royal (white feathered crimson). The two opposite beds are filled with Hyacinths, the dark blue Baron Van Tuyll and the white Baroress Van Tuyll alternately in one bed, and Robert Steiger (red) and Alba superhissima (white) in the other. These have a capital appearance, the alternation of colour being much more effective than masses of one variety. There are also several good beds near the Palm house, and we have never seen the greenhouse better filled or more attractive than it is at present.

— MR. JOSEPH MALLENDER sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, for APRIL, 1886:—Mean temperature of the month, 44.5°; maximum on the 27th, 66.7°; minimum on the 30th, 27.0°. Maximum in the sun on the 25th, 123.1°; minimum on the grass on the 12th, 19.8°. Warmest day, the 2nd; mean temperature, 50.6°. Coldest day the 10th, 36.7°. Mean temperature of air at 9 A.M., 44.9°. Mean temperature of soil 1 foot deep, 45.2°. Nights below 32° in shade, six; on grass, eighteen. Total duration of sunshine in month, 124 hours, or thirty per cent. of possible duration. We had five sunless days. Total rainfall, 1.66 inch.

Maximum fall in twenty-four hours on the 2nd. Rain fell on sixteen days. Average velocity of wind 13.1 miles per hour. Velocity exceeded 400 miles on eight days, and fell short of 100 miles on one day. A cold month, with average rainfall and sunshine. Heavy gales in the first week with mild and rather wet weather; the rest of the month cold, the last ten days being dry and the nights in the last week frosty. Vegetation still very backward. Fruit blossom very plentiful, and so far not hurt by the frosts.

— ONE of the finest displays of Tulips we have seen is in the garden of J. S. MORGAN, ESQ., DOVER HOUSE, ROEHAMPTON. The whole of the large beds in the flower garden were planted by Messrs. James Veitch & Sons, and the many thousands of fine blooms in rich and chaste colours produce a magnificent effect. Mr. Forbes, the gardener, has also planted double rows of Tulips round the margin of the Rhododendron beds and shrubbery borders, where the colours are displayed to great advantage by the background of evergreens. Mr. Morgan's garden is remarkable for its high keeping, ample means being afforded for all requirements, and these being supplied by a skilful gardener, everything is in a most satisfactory state. Fruit is extensively grown in many structures, some model three-quarter span houses and a very long fruit case having recently been completed by Messrs. J. Weeks & Co. It is gratifying to observe the excellent manner in which the wall trees are trained. They remind of the trees of the past that were ornaments in many gardens. Such trees occupy no more time in affixing to the walls than when branches are secured in all their crooked deformity, and trees well trained yield as much fruit as those of a contrary character. The Plums and Cherries on the walls in the garden in question are pictures of beauty, and the Peaches and Nectarines under glass are studded with swelling fruit. Vines give promise of heavy crops, and great provision is made for Tomatoes that are required in large quantities throughout the season. Among flowers some grand blooms of Souvenir de Malmaison Carnations command admiration, and thousands of plants of the leading varieties are grown in beds. Chrysanthemums, too, are extensively grown, all the best varieties being included and cultivated well.

— THE title "QUEEN OF THE ORCHIDACEOUS PLANTS" has been bestowed upon *Grammatophyllum speciosum* by some writers, and the *Tropical Agriculturist* thus refers to a fine specimen of this Orchid:—"At the Government botanical gardens at Buitenzorg there is now flowering an Orchid of gigantic size bearing the name *Grammatophyllum speciosum*, and displaying no less than twenty-eight flower stalks. Each of them is on the average 8 feet long. On one stalk alone there are seventy flowers, of which fifty were all open together at one time. The flower is generally 5½ inches in diameter. Each flower leaf is 2¾ inches long and 1½ broad. The colour of the flowers is yellow flecked with brown spots, while the curled edge which, taking the size of the flowers into account, is particularly small, shows more of a copper colour with brown stripes. The flower stalks which, be it noted, are stiff, mostly stand upright, but the numerous heavy leafstalks hang down, some of them being at least 10 feet long. The flowers, like those of most Orchids, remain long fresh. This plant grows on a tree about 8 feet above ground, and has completely encircled its trunk. One peculiarity in its mode of growth is that the numerous roots all grow upwards slantingly. These roots, owing to their great number, form a kind of parasol turned upside down. The leaves falling from above remain hanging between these roots and decay, doubtless serving then as food for the plant. The latter requires, so to speak, very little care. The only looking-after called for is indeed now and then to cut off decayed leaves or flower stalks. Even in the driest seasons it has never any need of water. *Grammatophyllum speciosum* grows in the jungles of West Java. It is the only one of the species to be found throughout the whole island."

#### HEDGES.

ALLOW me to thank your correspondent, "Baillif and Gardener," for his practical remarks on this subject in this week's Journal. I had been treating some hedges in the manner described, and, seeing the improvement effected, was about to operate on others in the same manner, when I wrote the notes referred to. My object in so doing—though I may have failed to make it quite clear—was to point out that there are many hedges not very satisfactory that may be made much better without cutting down, for in some positions a slashed hedge is not very ornamental for some time afterwards. Where there are no serious gaps to fill up, I am quite satisfied, from my own observation, that a thin-bottomed hedge may be made a very good one by sideing it up in the manner described. On the farm where a fence is more the object than ornament or shelter, there is no doubt the process described by your correspondent is the best. As to



the cutting of young hedges, looking at it from a gardener's point of view. I think they can be very well grown, and be more ornamental, when cut annually, say at the end of eight years, than if laid at the end of six years. But I admit it may not be so strong a fence.—R. INGLIS.

### ROSE SHOW FIXTURES, 1886.

FOR the guidance of those Societies which have not as yet fixed the dates of their exhibitions I append the following list of Rose Shows arranged to be held during the coming season by the National Rose Society and Societies affiliated with it.

Bagshot and Windlesham Rose Society, at Bagshot, Tuesday, June 29th.

Diss Horticultural Society, at Diss, and the Canterbury and Kent Rose Society, at Canterbury, Tuesday, June 29th.

Croydon Horticultural Society, at Croydon, Wednesday, June 30th.

Farningham Rose and Horticultural Society, at Farningham, Wednesday, June 30th.

Reigate Rose Association, at Reigate, Thursday, July 1st.

Tunbridge Wells Horticultural Society, at Tunbridge Wells, Friday, July 2nd.

Brockham Rose Association, at Dorking, Saturday, July 3rd.

Eltham Rose and Horticultural Society, at Eltham, Saturday, July 3rd.

National Rose Society, at South Kensington, Tuesday, July 6th.

Cardiff Rose Society, at Cardiff, Wednesday, July 7th.

Ealing, Acton, and Hanwell Horticultural Society, at Ealing, Wednesday, July 7th.

Sutton Amateur Rose Society, at Sutton, Wednesday, July 7th.

Bath Floral Fête and Band Committee, at Bath, Thursday, July 8th.

Hitchin Rose Society, at Hitchin, Thursday, July 8th.

Ipswich and East of England Horticultural Society, at Ipswich, Thursday, July 8th.

Hereford and West of England Rose Society, at Hereford, Friday, July 9th.

Maidstone Rose Club, at Maidstone, Friday, July 9th.

Cray Valley and Sidcup Horticultural Society, at Froggnal, Saturday, July 10th.

Wirral Rose Society, at Birkenhead, Saturday, July 10th.

East Gloucestershire Rose Society, at Moreton-in-Marsh, Tuesday, July 13th.

National Rose Society, at Birmingham, Thursday, July 15th.

West of Scotland Rosarians' Society, at Helensburgh, Friday, July 16th.

The only fixtures of Rose Shows not in connection with the National Rose Society that have as yet reached me are the two following:—

Oxford Rose Show, Wednesday, July 7th.

Crystal Palace Rose Show, Saturday, July 3rd.

### GLOIRE DE DIJON ROSE.

IT is questionable if any Rose possesses a better constitution or flowers with greater freedom than this. For size and fragrance its blooms early in the season are unsurpassed, and very few Roses open their flowers so freely during the dull days of winter and spring. With this Rose alone there need be no difficulty in maintaining a continuous supply of blooms from the end of January until they can be gathered outside. They can be had earlier, for this year we were cutting from it at Christmas. In a cold house it comes into flower early in May—if in a southern aspect earlier—and can be succeeded by plants on a sunny wall outside. In this position they commence growing early, and are often destroyed by late frosts unless slight protection is afforded them. They are worthy of this; a little old tiffany is ample for shielding their tender buds and foliage from cold winds and frost.

For very early flowering plants that have been forced early this season are decidedly the best. Ours for this purpose are trained under the roof of the Rose house, and are in 10-inch pots. They have been flowering since Christmas, and have still several buds upon them. They will presently be transferred into 12-inch pots without disturbing the old ball very much; in fact, the drainage and loose soil from the top of the ball only will be removed. They will not be severely pruned, but thinned to induce the formation of new shoots of moderate strength, for these thoroughly ripened are preferable for early forcing. These plants will in all probability be grown under glass the whole of the season if the space they occupy is not required for others. If so, they will be turned out and secured to a south wall or some warm sunny position to ripen and harden their wood. We top-dressed the soil towards the end of October, and then start them gently into growth. They can either be trained when brought indoors under the roof or round fine stakes inserted near the sides of the pots. No pruning at that season is attempted, and no feeding is practised after the plants are placed outside, the object being to ripen the growth thoroughly and not to encourage its extension.

Small plants that were rooted in autumn in 3 to 6-inch pots will flower about the end of January or early the following month. If these have been wintered in a cold house, such as a vinery or Peach house, their roots will be active, and signs of growth will be visible. These should be repotted, giving them a shift 2 inches larger than those they are now growing in. Place them at once in a temperature of 50° to 55° at night, the latter during mild weather only. No air should be admitted until the weather is sufficiently genial in spring to avoid chilling the plants, which would be certain to produce mildew. About the beginning of June

the plants may safely be grown on without the aid of artificial heat. It will be seen soon after the plants have commenced activity that one or more fairly strong shoots will issue from the base. When these are 1 foot or 18 inches long, the remaining portion of the plant may be removed, and one or two encouraged to extend upright. Care must be taken not to destroy the points of these shoots, or lateral growths will be formed. When the plants are from 3 to 4 feet in length they may be placed into 10-inch pots, which will be large enough for plants with stems 14 to 16 feet in length with several strong lateral growths upon them, for this variety, unlike *Maréchal Niel*, will branch towards the top. As growth extends they should be trained under the roof of the greenhouse or any other structure where they will be exposed to light and sunshine. Those for early forcing should be kept under glass until the end of August, when they may be turned out to harden, or they may be left under glass until the middle of September, when they can be trained round stakes and placed outside exposed to one or two early frosts. When these Roses are subjected to frost they enjoy a complete rest afterwards, and when excited in heat start freely and vigorously. If left outside, these plants will be in capital condition for housing towards the end of November, and if started gently into growth will unfold their flowers towards the end of January or early the following month. Roses brought forward gradually to flower towards the end of March and during April will possess fine foliage, and for this purpose some of them may be trained to a few stakes so as to form even bushes when they flower. Plants trained after this manner are very effective with from two to three dozen fine flowers upon them and the whole of the stakes hidden from view by the foliage. For purposes of decoration this mode of training is decidedly the best, but when the blooms are grown only for cutting the plants are just as well trained round four or five stakes. If plenty of these plants are grown, they can be retarded by keeping them in a cold house or frame and introducing them into heat as required to form a succession until they can be had outside.

As these cease flowering it must be decided whether they are to be retained instead of those that have been forced early in 12-inch pots; if not, they can be cut close back and allowed to start in a cool house, to be finally planted outside or conveyed to the rubbish heap. Young plants can be grown on so easily that we do not care to retain them for indoor purposes after they have been flowered in the size pots mentioned. Other plants started later, even while flowering, often produce strong shoots from the base; and when this is the case they may be pruned close back and trained under the roof for early flowering the following year. After these have fairly started into growth they may be transferred into 12-inch pots, and after flowering can be retained for outdoor planting or be conveyed to the rubbish heap.

Many may not be so fortunate as to have plants in the condition indicated, but some splendid plants may be raised for flowering early next spring from cuttings inserted at once. Cuttings of young wood, not half ripe, root freely at this season if inserted together in 5 and 6-inch pots, shaded from the sun and kept air-tight until rooted, which will take place in about three weeks. Two joints of wood will be sufficient for the cutting, and the top eye only should be left above the soil. After insertion give a good watering, and cover the pots with bellglasses or a handlight. We generally employ the latter, and place it in a temperature of 60° to 65° by night. If kept air-tight the cuttings will not damp, and they will not need a farther application of water until rooted. When they reach this stage they must be gradually barded to light and air until they bear full exposure in the house in which they are rooted. As soon as they are hardened place them singly into 3-inch pots and grow on for a time in the same temperature. By the time they are 1 foot high they should be in 6-inch pots, and from these when full of roots be transferred to 10-inch pots—the size they are to flower in. By the time they have filled the second-sized pots with roots they can be grown on with the remainder of the stock without the aid of artificial heat. These plants should be grown under glass the whole of the season, for it will be late before they have ripened their growth sufficiently to flower well. Towards the end of October they may be trained round stakes and stood outside until frost compels them to be taken in. Where earlier plants are grown these should not be brought into flower until the spring has well advanced; if they can come on under cool conditions they will flower all the better. They can easily be retarded by keeping them in cold frames.

This Rose succeeds admirably in a compost of rich fibry loam of a moderately light nature, to which may be added one 6-inch potful of bonemeal and the same quantity of soot to each barrowful of loam. If the loam used is heavy a few quarter-inch bones and nearly one-third of leaf mould may be used with the addition of coarse sand. If the loam is rich we prefer using it without adding manure to the compost, which may result in a little stronger growth, but it will not be so firm as when grown in the compost previously named. The object is to obtain firm well-ripened growth, and not pithy wood that is liable to die in winter or fall just when the flower buds are half swelled. When plants are raised from cuttings a little leaf mould, say one-third, may with advantage be added to the compost to encourage rapid growth. In the compost for those plants transferred from 10 to 12-inch pots about one-seventh of decayed manure may be used.

When potting these plants, clean well-drained pots should be employed. The old balls should not be disturbed further than the removal of the drainage and loose soil about the surface. Take care that the plants do not become root-bound before they are transferred into larger pots. The soil should be pressed firmly into the pots, as this insures sturdy growth and saves labour in watering.

To grow this variety or any other Rose to perfection they should never



suffer from an insufficient supply of water at their roots. Not even during the resting period should the soil become dust dry. During that period it must be kept in an intermediate state as nearly as possible. Apply water carefully after the plants are first potted until they are rooting freely in the new soil, when liberal applications may be given. No feeding will be needed until the plants have filled their pots with roots, when they may be watered every time they need supplies with liquid manure in a weak state. In preference to feeding with liquid we apply a little artificial manure to the surface of the soil once a fortnight, and give clear water only. This is continued until growth is completed, and then discontinued until activity commences again during forcing operations. We have invariably found that the roots do not work actively near the surface of the soil when liquid is applied, it appears to sour the surface soil; but when artificial manure is applied the roots work very freely on the surface.

These plants should be kept free from insects, which will be the case if the plants are syringed with a weak solution of softsoap, and water once or twice daily according to the state of the weather. Aphides are best destroyed by lightly fumigating the house in which they are growing with tobacco smoke. Two or three applications are much safer and better than one very strong fumigation. Mildew will not appear if the plants are properly treated and a free vigorous growth maintained from the first. Cold draughts or a check from any cause will result in an attack of mildew. When the plants are attacked nothing is better or destroys it more quickly than 1 oz. of softsoap dissolved in a gallon of water into which one good handful of sulphur has been stirred. The plants should be well syringed with this solution, which should be left upon them for two or three days, and then syringed off with clean tepid water. Sulphide of potassium has been strongly recommended as a remedy for mildew, but those who have not used it should do so carefully, for it will discolour white paint—it turns it the colour of rusty iron. As soon as we discovered this we placed it on one side to be tried on plants out of doors.

Such varieties as Maréchal Niel, Rêve d'Or, Larmarque, Cheshunt Hybrid, Reine Marie Henriette, Belle Lyonnaise, William Allen Richardson, a pretty free Rose and well worth growing, will do well on the same principles of culture as advised for Gloire de Dijon. With the exception of the first mentioned none is so free, and even it does not bear the same forcing as Gloire de Dijon. The fourth and fifth are worth growing and forcing for their colour.—WM. BARDNEY.

### HORTICULTURAL SHOWS.

THE following are the dates of the principal Shows to be held during May and June this year. The Rose Shows are given in another column. The great event of the season will no doubt be the provincial Show of the Royal Horticultural Society at Liverpool at the end of June.

#### MAY.

- 11th.—Royal Horticultural Society, South Kensington, Committee meetings and Promenade Show.
- 12th and 13th.—Birmingham Exhibition of Orchids in the Botanic Gardens.
- 19th.—Royal Botanic Society, Regent's Park, Summer Show.
- 21st and 22nd.—Crystal Palace, Summer Show.
- 25th.—Royal Horticultural Society Committee meetings and Exhibition of Pot Roses, Azaleas, &c.

#### JUNE.

- 8th.—Royal Horticultural Society Committee meetings; Orchid Exhibition.
- 9th.—Royal Botanic Society second Summer Show.
- 11th to 18th.—Manchester National Horticultural Exhibition, Old Trafford.
- 22nd.—Royal Horticultural Society Committee meetings and Pelargonium Show.
- 23rd and 25th.—York Floral Fête.
- 29th to July 5th.—Royal Horticultural Society Provincial Show at Liverpool.
- 30th.—Croydon Horticultural Show.
- 30th.—Royal Botanic Society's Evening Fête.

### PLANTS FOR SHRUBBERY AND WOODLAND BORDERS.

(Continued from page 319.)

DELPHINIUMS are stately, and their metallic blue flowers very beautiful—most blue of varied shade. They like open spots, but need shelter against winds, which shrubs afford perfectly. The finest of all is perhaps the Gloxinia of the woods—the Foxgloves—spotted Digitalis. Seed sown about this time, the plants pricked off and otherwise attended to, will be strong by autumn and fit to plant anywhere, doing well in any soil; but they flower longer in poor than in rich soil. They need open spaces, but with shelter near. They seed freely, and make grand masses. Honesty, though a biennial, when once established maintains its own. Its seeds being scattered naturally give rise to a numerous progeny, and very effective they are in early summer. Seed sown in spring will give plants fit to put out in autumn. The variegated form is attractive. Charming as Wood Anemones

are, they improve immensely by having as associates the varieties of *A. coronaria* and *A. fulgens*. Sow a bed now, and transplant them in autumn. *Oxalis rosea* is simply as hardy as Wood Sorrel, and does well enough in well-drained soil in woods, and it comes freely enough from seed sown in a frame, the plants being grown on outdoors and put out in autumn. Autumn is the time to plant, for when left until spring the plants hardly get hold before summer is upon them, and they get dried up. In order to give the plants a start clear away the coarse weeds, break the ground thoroughly for the stronger-growing kinds, and keep them from being overpowered and smothered in the year after planting, and once they get firmly established they give no further trouble, only coarse weeds ought never to be allowed to predominate.

In planting just look around, and as the Primroses appear naturally so strive to put out the nurselings. Irregular-shaped masses as far from the circles and ovals, triangles and diamonds as possible. There are many places in shrubberies and woods that are suited to plants of a higher class. I was particularly struck the other day with fine masses of *Lilium candidum* that in front of sheltered bushes had taken to themselves forms on the grass in what had no doubt been a bed on a lawn some time. They were only in strong leaf of course, but it was not difficult to portray the effect of such masses in early summer with a background of evergreens. *L. tigrinum* does well in such positions; *L. eroceum*, *L. davuricum* (umbellatum) vars., *L. chalcedonicum*, *L. Martagon* vars., and *L. superbum* vars. all succeed admirably, being planted about 4 inches deep in the first instance, and then left alone until they begin to push each other out of the soil, as they will when they become strong, and then is the time to take some of them up and plant elsewhere. *L. auratum* is quite at home in sheltered places. *Gladiolus* of the *blandus*, *byzantinus*, *cardinalis*, *Colvilli*, *communis*, *floribundus*, *insignis*, *psittacinus* vera, and *sagittalis* are quite charming in open sunny positions amongst shrubs where the soil is light, and *G. ramosus* vars. do first-rate in open spaces. All increase rapidly and form effective groups. They should be planted in autumn about 4 inches deep. In places that are not very much shaded we can bring together the Hellebores or Christmas Roses. *H. corsicus* is a fine shrub-like evergreen with deeply serrated tripartite leaves on stems about 2 feet high, and has greenish white flowers in winter and spring. Then there is *H. viridis* in a similar way, with green flowers, and *H. atro-virens*, with *H. antiquorum* and *H. abchasicus albus*, both having greenish white flowers, and the similar *H. olympicus*. For mixing with these we have purples, *H. caucasicus punctatus*, *H. atro-rubens major*, *H. abchasicus metallicus*, *H. colehicus*, and *abchasicus purpureus*. For margining *H. guttatus*, *H. niger* and its vars. *altifolius*, *caucasicus*, and Scotch and Manchester varieties of *H. niger angustifolius*, and besides these there are many garden varieties. These like moist but well-drained soil. If Winter Aconite and Hepaticas are associated with the Hellebores the effect is superb. Trolliuses in variety give their golden globes in early summer, and do well in moderate shade, with soil similar to Hellebores—moist, not wet.

In semi-wild places what is finer than *Anemone japonica* and its white variety? They like protecting company, growing, flowering, and increasing to an amazing extent, and in sheltered spots the flowers are had much later than in the rich soil and open spaces of dressed grounds. Tritomas show finer there than isolated on lawns. The different kinds need never lack suitable positions in a stretch of shrubbery or woodland. They look best when seated on a gentle knoll with Pampas Grass high up in a recess; for whilst some plants tell best at a close view, others show to greatest advantage in the distance.

Open glades give scope for patches of German Irises, and the taller *I. orientalis*, *Hemerocallis*, *Asphodelus*, *Anthemiums*, *Funkias*, *Pæonias*, &c., forming effective groups, only avoid formality. *Dictamnus*, that does not like the bare border and constant hoeing of gardens is at home there, and so are the Michaelmas Daisies (*Asters*) set back where they get plenty of sun, with shelter from winds. The perennial Sunflowers spread rapidly if only the soil is loose, and their large flowers on stately stems tell well against a background of sylvan gloom. Specimens—nay, groups—with wildlings scattered about like stray sheep from a flock, of *Acanthus*, *Eryngium*, *Ferula*, and their like, with *Rheums officinale* and *Emodi* where there is a good depth of moist soil and plenty of room both vertical and lateral, such places suiting the gigantic *Polygonum cordatum*, *sachalinense*, and *Sieboldi*, *Veratrum nigrum*, *album*, and *viride*, and *Bocconia cordata*, with *Phytolacca decandra*. Drier places will suit *Heli-anthemiums*, *Geraniums* in variety, and *Galega officinalis* and var. *alba*. These and many others can be spared from garden



borders when the plants are divided and replanted, and there are few shrubby borders that could not accommodate the castaways with advantage. Wet spots will suit *Spiræa Ulmaria*, *venusta*, and *Aruncus*, *Astilbe rivularis*, Sweet Flag, *Carex paniculata*, and *Equisetums*, with *Gunnera scabra*. Wet and shady places will suit Ferns, such as *Osmunda regalis*, *Struthiopteris pennsylvanica*, *Athyrium Filix-femina* and its beautiful varieties, *Lastrea dilatata*, &c. If there should be a rivulet, however tiny, and it can be widened so as to form a small lake, then the Bull-rush is useful, *Aponogeton*, and the *Nymphaeas*, with other aquatics. We get the moisture-loving plants altogether, and if judiciously placed they form quite a feature.

Plenty of places will present themselves as suitable for single Roses as *Rosa rugosa*, Paul's singles, &c., that are so finely contrasting with the Dog Rose in summer with flower and in autumn with fruit. Sweet Briar will lade the air with fragrance and Rose of Sharon (*Hypericums*) will light up the sombre summer foliage with gold. Bare tree stems with not very vigorous heads, but past their best, can be clothed with Clematises, such as Traveller's Joy and *C. montana*. Roses, too, of the common climbing sort, Ayrshire, Boursault, and evergreen; and if Virginian Creepers, Vines, and Hops are added, something of the picturesque will be obtained, charming in summer and still more so in autumn with the rich tints the foliage imparts to the scene. Honeysuckles will complete the beauty of the scene; they look so natural twining about trees. Bare spots in shade or open are suitable for bulbs. Winter Aconites, Snowdrops, Daffodils, Scillas, and others for shady situations or under deciduous trees; and Crocuses, with the choicer Narcissi, for open places, bulbs of all kinds doing well in grass, being all the better of a lifting occasionally; besides, the bulbs that are used in bedding are utilised annually for planting in shrubby borders and woodlands. The time to lift, divide, and replant bulbs of all sorts is as soon as the foliage dies. Drying is only a matter of convenience with many bulbs, and with some is positively injurious, especially for Snowdrops and Daffodils. What a fine show Tulips make on grass! They only want a trial in good soil in open spots, keeping them from being smothered with rubbish, whilst little attention is needed for most, whether cultivated or semi-wild.—G. ABBEY.

#### AURICULAS AT SOUTH KENSINGTON.

"D., Deal," at page 339, does not place the details of the National Exhibition fairly before the readers of the Journal, and he is quite incorrect in some particulars. The dry statement that Mr. Horner was absent has to be accounted for by his absence from his plants for about a period of three weeks previous to the exhibition watching by the death-bed of his mother. His plants were five days late, had he been at home to attend to them he would undoubtedly have been present as usual. Mr. Brockbank, not "Brookbank," was not represented; he did not intend to exhibit if his plants had been in. There was not such a very great falling off in exhibitors. I find on reference to the prize list that there are seventeen prizetakers, some of them exhibitors for the first time. I am also considerably bewildered by the remark that Mr. Turner's Auriculas had received fire heat "night and day since Christmas." All I can say is that our Auriculas had no heat, except sufficient at nights to keep out the frost, and they were certainly some days in advance of Mr. Turner's. Further, I must protest against the remark that the trusses of the Auriculas in the large collections had spindly stalks, requiring sticks to support them. "D., Deal," knows quite well that this is a slur on the professional character of an Auricula grower, and as far as I am concerned the statement is utterly untrue. Mr. Castle saw our plants five days previous to the exhibition, with the trusses all standing up firm and elastic, and not a stick to one of them, and as soon as the plants came home the sticks were removed, and although the plants had been two days in the conservatory at South Kensington, and two nights in the close van, the stems were yet as firm and erect as ever, and by the appearance of Mr. Turner's plants I should say his were the same. I have paid some attention to Auriculas during the last dozen years, and am quite safe in saying that "D., Deal's," remarks are neither correct nor generous to the Society. What is one to think of a judge who failed to distinguish much difference between Sapphire (Horner) and Charles J. Perry (Turner)? It is just as reasonable to say there is not much difference between Sim's Eliza and Campbell's Pizarro, or between Lancashire Hero and George Lightbody. In all three cases the difference in foliage and flowers can be distinguished at a glance.—JAS. DOUGLAS.

#### LEEK AURICULA AND SPRING FLOWER EXHIBITION.

The first Exhibition of Auriculas and spring flowers in Leek took place at the Town Hall on May 1st, for the benefit of the Cottage Hospital. The Show was arranged and energetically carried out by a few growers and admirers of the Auricula in Leek, to whom great credit is due. This favourite flower (so little known in Leek) was, of course, the centre of attraction, and considering the lateness of the spring, the specimens exhibited in all classes, more especially the self-coloured edged ones, would compare very

favourably with other exhibitions held in different parts of the country, and augurs well for the culture of this charming flower in this district.

In the green-edged class we missed F. D. Horner and Prince of Greens, these plants not being in bloom with us. Anna (Trail) first honour, L. curgus second honour. Grey-edge class.—The veteran George Lightbody first, Frank Simonite second, Rob Trail third. White-edge.—Acme (Reid) first, Beauty (Trail) second, True Briton third. Self-coloured class was the best class of all, the first honour being deservedly awarded to Negro (Mellor), a splendid trust of eleven pips; Mrs. Heap (Mellor) second, and Lord of Lorne third. Stage Alpines.—Diana first, Lavinia second, Mercury third. Mr. Mellor, nurseryman, Leek, was awarded first-class certificate for a splendid collection of garden varieties Alpines.

The competition for Daffodils (ten varieties) were certainly one of the features of the Exhibition, the blooms being remarkable fine and everything that could be desired. The prizes (which were given by Mr. Mellor, Leek Nurseries) were awarded as under:—H. W. Nixon first, J. Cheetham second, J. Garner third.

The room was suitably decorated with stove and greenhouse plants, kindly lent for the occasion, and Mr. H. W. Nixon of Leek read a very interesting paper in the afternoon and evening upon the history and culture of the Auricula, which he was accorded a hearty vote of thanks.

The Committee are pleased to be able to hand over to the Cottage Hospital a nice little sum.

#### PRIMULA OBCONICA (P. POCULIFORMIS).

SINCE its introduction into this country four years ago by Messrs. Veitch & Sons of Chelsea this species has proved itself a popular favourite with all lovers of Primulas. It is one of those sterling novelties that will not fail to command admiration on account of handsome habit of growth, floriferousness, and pleasing flowers. Moreover, owing to its perpetual-flowering character, it admirably supplies the link wanting in the *sinensis* section—abundance of flowers during the summer. Beautiful as the numerous varieties of the *P. sinensis* section are, their flowers are not (with the exception of the doubles) so suitable for cut purposes as those of *P. obconica*. There is a want of lightness about the blooms of the former that prevents their use to a great extent in strictly artistic floral arrangements; but it is not so in the case of *P. obconica*, for here you have a truss of blooms, not large or "lumpish," but of a more convenient size, light, and graceful, with blooms of a pleasing shade of colour, ranging from mauve to pale lilac and frequently pure white.

To those who have not seen this beautiful species in its true character my description of its good qualities may seem somewhat exaggerated. In order to dispel this illusion I may say that my employer is an accomplished artist, and whose friends possess similar acquirements; these, one and all, are charmed with this species. In consequence of its being such a favourite here I have long ceased to grow any of *P. sinensis*. Here, however, it grows under conditions more favourable to the development of its true character than is usually accorded to this or other plants of a similar character.

Our plants, as soon as they commence flowering, are employed to form portions of several groups of plants which are arranged in a large winter garden here; and as these groups are arranged on large irregular mounds of soil interspersed with large blocks of stones, among which the pots of the various plants used are plunged up to the rim, the Primulas having what is most congenial for their roots, a cool and moist condition unattainable in the ordinary conservatory or greenhouse. Some of these plants are grouped in masses, others placed in clefts between the large boulders of stones, and in this position they thrive remarkably well. As a proof of the good effects of having their roots plunged in a cool moist medium as just described, I may state that although the best of our plants are growing in pots of not larger than 5-inch size, each plant carries on an average from six to fifteen trusses of bloom.

The culture of *P. obconica* is by no means difficult for anyone possessing a greenhouse. Seed should be sown now in pots or pans filled one-third of their depth with drainage, over this place a layer of rough material, filling the remainder of the pot to within an inch of the top with equal proportions of finely sifted peat, leaf mould, loam, and sand, pressing it in firmly and giving when finished a watering with a fine-rose waterpot. On this sow the seed evenly, covering the pot with a square or circle of glass, and plunging it if possible up to the rim in cocoa-nut fibre in slight bottom heat. Cover the glass with a layer of fibre or a sheet of brown paper until the seed commences to germinate, then gradually expose the seedlings to the light, and after a few days place the pot on a shelf as near the glass as possible, taking care to shade the young plants from sunshine. As soon as the plants have formed the second leaves carefully transplant them round the edges of clean 3-inch pots filled with the same compost as before for the seed pots. Water these at once, and plunge the pots in fibre either in a warm moist corner of a greenhouse, or in a frame which can be kept close if desired. In the course of a couple of weeks the young plants will be fit for potting singly in small 60's, using a little decayed cow manure and a sprinkling of old mortar in addition to the compost already mentioned. Replace and plunge the plants in the frame, attending carefully to watering, and shading, and airing, and when the pots are full of roots shift them on into 5-inch pots. In potting for the last time allow the depth of at least an inch from the top of the pot to remain; the object of this is to permit the plants being top-dressed with a little cow manure and Clay's fertiliser after they have borne their first flowers. This species is a very free rooter, hence it requires stimulating frequently during the flowering period. The top-dressing will work wonders in the course of a few days; indeed, we often find the inch of manual top-dressing full of delicate white and pink roots within a week of its application. A little soot and liquid cow



manure is an excellent cooling stimulant for applying bi-weekly to this species when in flower. *P. obconica* will not bear overpotting, therefore do not put the plants in a larger size than 5-inch pots.

Old plants are easily rejuvenated by dividing them at any time during the spring and summer and growing on as advised for those grown from seed. The plants grown from seed will, if the foregoing simple requirements have been attended to, commence to flower by the middle of September, and continue to do so, more or less, all the year round, especially in a cool, moist, and shady position. This species is reputed by some to be hardy enough for growing out of doors, but having tried it for two seasons under similar conditions to *P. cortusoides*, which thrives well with us out of doors, we cannot report favourably of its adaptability for this purpose. Like several other so-called hardy Primulas, its proper position is under glass, and when grown under the conditions suggested in the foregoing notes it will prove one of the most beautiful and interesting of the whole family.

*P. obconica* is also known under another name—viz., *poculiformis*,

a bad bargain, but the Company fared better still when Sir Hans Sloane made the ground over to them in perpetuity, on condition that they obtained fifty new plants yearly, until the number of 2000 was reached. As he behaved generously to them in other things, as, for example, contributing towards the expense of their buildings, he well deserved the memorial of a statue in marble, which still remains, though none the better for the action of so many years' moisture and smoke. Any respectable person can obtain from the Apothecaries Company a ticket to visit these Gardens. I regret that so few horticulturists of our time have been within their walls. Perhaps they judge that not much is to be learnt here, yet the place has its historic interest. It is one of the oldest, if not the oldest garden of London. In it were erected some of the first greenhouses devoted to forcing plants or nurturing exotics. At the beginning, species cultivated in the open must have grown nearly as well as they would miles away from London, so pure was the Chelsea atmosphere then. Many trees and shrubs formerly admired and studied have now disappeared, decaying from old age or other causes. A long list of famous men,



Fig. 66.—PRIMULA OBCONICA (*P. POCULIFORMIS*).

and as such is figured and described by Sir Joseph Hooker in the "Botanical Magazine."—T. W. SANDERS.

[Our illustration was prepared from a plant in the collection from the Edinburgh Botanic Garden, shown at the Primula Conference, South Kensington, on April 20th.]

#### LONDON'S LESSER OPEN SPACES—THEIR TREES AND PLANTS.—No. 8.

TIME was when we could look from the green fields of Chelsea to the broader fields and hills of Battersea opposite. Battersea has, indeed, yielded most of its market gardens to the ruthless builder, but a green portion of Battersea is preserved intact within its park, where, under judicious treatment, and by careful adaptation of place, so many exotics flourish in the uncertain clime of London. The Chelsea meads, where cows grazed, people drank tea, and botanists hunted for specimens, have gone; houses cover the ground mostly, though the Apothecaries' Garden does yet keep open what was once a field, and in the seventeenth century liable to be overflowed during some tides. When the Apothecaries got this piece of land in 1673, at a rent of £5 per annum, they did not make

gardeners or botanists, might be given, whose feet have oft trodden this small area, for I suppose it is only three acres. Amongst these memory recalls, beside Sir Hans, the genial Evelyn, Sir Joseph Banks, Petiver, Miller, Forsyth, Fraser, Anderson, Fortune, and Curtis. The esteemed Curator at present is Mr. Thos. Moore, F.L.S. He has held the office since the summer of 1848, and I trust he may be spared to reach his jubilee.

Most visitors enter these gardens by a gate in a side lane from Queen's Road that once led down to an old tavern, "The Swan." The effect of the first view, I think, is to give us the idea that the extent is greater than is the fact. The principal houses lie on the right, also the offices, the herbaceous ground to the left, a few trees are scattered over the centre, but there are no shrubberies. A sloping bank on the east side is devoted to Ferns, but at the time of my visit this did not appear to advantage. In a corner close to this stands yet the Oriental Plane of large dimensions. It is, however, dead, having suffered like some others here, during the making of the embankment. Conspicuous near the river is the sole surviving Cedar, which, with its companion that died off some years ago, were familiar landmarks to those passing along the Thames, and which had the honour to figure as frontispiece, with a bit of the Gardens, to a curious and scarce book about physicians, entitled "The Gold-headed Cane." This Cedar was planted in 1683, being then



3 feet high, so that it is certainly above 200 years old, but its size is not remarkable. I have seen larger, which I have reason to think its juniors. Perhaps the growth was checked by some lopping. This, Miller remarks, is injurious to the Cedar, and he attributes the dwarfing of a couple here to much treatment of this sort. Four, it seems, were set originally, and two cut down in 1771. The third was greatly injured by a snowstorm of Jan. 1809, and finally succumbed.

In one part of the ground, when Mr. Moore took the curatorship, were a number of old Apple and Pear trees which bore tolerable crops; but their removal was deemed necessary, nor was it desirable to replace them. (Early in this century a great deal of fruit was produced in Chelsea orchards.) The aged Cork Oaks and the Pistachia tree were not to be found, nor the large Magnolia Faulkner saw; the celebrated Paper Mulberry and the Pomegranate had also gone. Amongst its notable trees was a Maidenhair Tree or Ginkgo (*Salisburia adiantifolia*), an offshoot from the remarkably fine tree once at Mile End nursery, has left but its memory. Of the survivors I might name an old Quercus Ilex, a Service Tree (*Pyrus Sorbus*), a middle-sized Black Mulberry—perhaps descended from Queen Elizabeth's tree, formerly not far off—and a few varieties of the Willow. A specimen of *Styrax officinalis* looked flourishing, though I could hardly believe it was the one mentioned by Loudon in 1838 as flowering and fruiting well every year. On a south wall Forsythia *Fortunii* was coming into bloom, and sundry Mezerions scattered about, and there were a few more spring-flowering species, chiefly bulbous. The north-east corner exhibited a quantity of Yuccas that seemed very thriving. Rather a pretty effect was given to some beds by edging them with moss. This had, however, suffered from the severe winter. For the instruction of students a number of beds were set out systematically with exotic and indigenous plants, many medicinal, and I suppose at first these were grouped on the old or Linnean system, then in favour; now the natural method is followed. I only add that the first example of *Greyia Sutherlandii* known to have flowered in Britain was reared here.

The oblong space between the houses of Sloane Street and Cadogan Place was, at one date, called "Sloane Square," more correctly it is now styled Cadogan Gardens. It is divided into two portions, the northern one being much larger than the other. This large plot of ground has the peculiarity that it lies quite a foot below the level of the land around; some think it was purposely contrived by the horticulturists who first had it in hand, for it was early during this century arranged as a botanic or nursery garden by Messrs. Curtis & Salisbury. An elaborate scheme that was devised was only partly carried out, but one side was arranged with beds containing classified plants, all duly named. After sundry changes, Mr. Tuck, florist, removed here from the King's Road, and until about five years ago it continued to be a nursery. Now it being free to the residents and their children for recreative purposes, flower-culture is not pursued, as it was considered better to keep the ground in the style of a miniature park, so that trees and shrubs are abundant, but the borders have little in them except a few specimens of such generally grown Londoners as Flags, Aaron's Rod, and Saxifrages. Its oldest trees are Elms; two of large size, but much decayed, are in the centre of the garden. There are also numerous Limes of moderate size; the Ash and Horse Chestnut, so common in many London enclosures, have only a few representatives. Along the east side are several aged Hawthorns that have flung their branches about in a weird and fantastic manner, and a Robinia of curious growth, for the trunk has bulged at a short distance from the soil, while the tree was but small apparently, and the girth has increased above this point out of proportion. The plan of the gardens is a central grass plot, from which clumps of shrubs branch off into the avenues of trees extending north and south. Lilacs and Laburnums have been freely introduced, also varieties of the Ornamental Currant, but there are few evergreens. Our old favourite, the Guelder Rose, is here, though looking a sufferer from the long winter and cold spring.

The other division of Cadogan Gardens is less carefully tended; it has even more trees, Elms, Limes, and Poplars, which being in close conjunction. One hedge, formed of Hawthorn and Privet mixed, has a pretty effect in spring, the fresh green of the "Maybush" showing off on the dark foliage of the evergreen, slowly opening its new buds. In one part of this space someone has formed a little grove of Hollies, which have long been unlopped, and present an odd aspect.—J. R. S. C.

#### NATIONAL AURICULA SOCIETY, NORTHERN SECTION.

THE Society's Northern Show was held in the New Town Hall, Manchester, on Tuesday, April 27th. It was, as it was feared it would be, not equal in quality and quantity to the average of a fair year's bloom. Many of the flowers were young, and had not had time to expand enough, and there was a lack of smoothness very unlike the standard of the dark stern north. The flowers of Mr. Potts of Hoole Hall, Chester, were the largest and brightest, and he won the chief honours of the Show. Miss Woodhead's flowers, from the near neighbourhood of Halifax, were the next in readiness and brightness. Mr. Wilson and Mr. Pohlman, who generally show well and strongly from Halifax, were sorely kept back by the lateness of the season, Mr. Wilson completely.

Many collections, including my own, will be standing in bloom well into May, and an unreasonable bloom projected beyond the average time is not easily kept long if a spell of hot weather comes. Auriculas have had a very late start and a very tardy progress this year. All the northern plants are in robust health, it is simply their flowers that have suffered from nakedness of the season at the unkindest moment. The Auricula likes plenty of time to expand its flowers, and it is almost equally an evil if that time be shortened by a forcing temperature of artificial heat or lengthened by an undue absence of spring sunshine and warm winds.

In the prize list of the Northern Show, Arthur Potts, Esq., held the champion position with six dissimilar Auriculas, one at least in each class, with Simonite's Rev. F. D. Horner, green-edged, very bright and bold, but not yet flat; Acme, white-edged, also very bright and bold, and also not yet flat; Lancashire Hero, grey, a very difficult flower this season with us all; Alex. Meiklejohn, grey, young and bold, a sort in which excess of size often makes it look coarse and difficult to tone in amongst its fellows; Mrs. Douglas, violet self, young and bright. Second, Miss Woodhead, with George Lightbody, nowhere to be seen in his pomp in this show; Acme, Prince of Greens, generally seen somewhere at Manchester at his best, which is a superb green edge and black body colour, fair round paste, sometimes dense and brilliant, and always execrable tube, never more than a sap green, and often sap and water, a flower for which one feels supremely sorry. It dies with edge and ground and paste all standing, and if its weak tube did not let it down in both life and property, it would be a rich flower indeed. Miss Woodhead's other plants in sixes were seedlings Black Bess, self dark; Mrs. Dowell, white-edged, and George Rudd, heavily-mealed grey. They were in their youth and bright. Third, in sixes William Brockbank, Esq., Didsbury, with Rev. F. D. Horner, green; Alex. Meiklejohn, grey; Acme, white; Melton's Reliance, white, a very fine thing, but not able at this show to do justice to itself; R. Headly, grey; and Negro, dark self. Fourth, Mr. E. Pohlman, with Prince of Greens; J. Crossley seedling, green; Acme, G. Lightbody, and Sapphire, and a seedling as self. Fifth, Mr. Councillor Bolton, Warrington, with Prince of Greens, Reliance; Acme, grey-edge seedling; Mrs. Douglas, and seedling s. lf. Sixth, S. Barlow, Esq., with Syke's Complete, grey, seedling green edge, seedling self, Trail's Beauty, white; Headly's New Green, and Violet Ruby, a sweet seedling self of great purity of ground and paste. Seventh, Mr. J. Buckley of Stalybridge with Pizarro, self; G. Lightbody, grey; Mrs. Douglas, self; Lovely Ann, green; Acme, white; Alex. Meiklejohn, grey. In four dissimilar, Arthur Potts, Esq., first with Rev. F. D. Horner, green; A. Meiklejohn, grey; Acme, white, and Mrs. Douglas, self. Second, Mr. R. Lord, Todmorden, with Blackbird, self; Acme, white; G. Lightbody, grey, and a green-edge Richard Gorton that seems a flower of high promise. Third, Miss Woodhead, with Smiling Beauty, white; Prince of Greens; G. Rudd, grey; and Black Bess, self. Fourth, Mr. J. Buckley; fifth, Mr. H. Wilson, Halifax; sixth, Mr. E. Pohlman; seventh, Mr. Bolton.

In the open class for dissimilar pairs both as to variety and class, first, Mr. Wm. Taylor, Middleton, with Prince of Greens and Trail's Beauty. Second, Richard Gorton, Esq., Eccles, with Rev. F. D. Horner and Frank Simonite, white. Third, Clement Royds, Esq., Rochdale, with Conservative, white edge (Douglas); Prince of Greens. Fourth, Mr. G. Gordon with Headly's New Green and Trail's Beauty. Fifth, Mr. R. Heys, Norden; sixth, Mr. E. Shaw of Moston; seventh, Mr. J. Hilton.

In pairs for maiden growers only—that is, for exhibitors who never yet have won the amount of their subscriptions at any one show, first, Mr. G. Gordon. Second, Mr. J. Hilton. Third, Mr. H. W. Nixon, a grower from Leek, where the cultivation of the Auricula is being enthusiastically taken up, and inaugurated by a local show where the competitors nobly consent to strive at first for honours only.

The premier Auricula of the whole Show was a plant of Walker's John Simonite, white edge, with finely balanced pips. For this proud position Geo. Lightbody at his best is always a strong candidate, and has much chance by being universally grown. It will, however, be seen by reference to records that other and younger sorts, of which there are comparatively few specimens yet existent, have held the premiership also—a cheering sign of progress.

In single specimens the awards were:—

**Green-edge.**—Premium, Wm. Brockbank, Esq., with Rev. F. D. Horner. First, Mr. Wm. Taylor with Lovely Ann. Second, Miss Woodhead with Prince of Greens. Third, R. Gorton, Esq., with Lancashire Hero. Fourth, Wm. Brockbank, Esq., with seedling. Fifth, R. Gorton, Esq., with Rev. F. D. Horner. Sixth, A. Potts, Esq., with Taisman. Seventh, S. Barlow, Esq., with New Green. Eighth, Mr. Councillor Bolton with Anna.

**Grey-edge.**—Premium, A. Potts, Esq., with G. Lightbody. First, R. Gorton, Esq., with G. Lightbody; and fourth and fifth, with A. Meiklejohn and Lancashire Hero. Miss Woodhead second and third with Rachel and George Rudd; Mr. W. Taylor sixth with Trail's Beauty. Wm. Brockbank, Esq., seventh and eighth with seedlings.

**White Edges.**—Mr. Wm. Taylor premium with Acme. A. Potts, Esq., first and third with John Simonite and Conservative; Mr. E. Pohlman second with Acme; Miss Woodhead fourth with Smiling Beauty; Mr. E. Shaw, Moston, fifth with Bright Venus; Mr. Bolton sixth and eighth with Snowdrift and Frank Simonite; C. Royd, Esq., seventh with Silvia.

**Selfs.**—Mr. Councillor Bolton premium with Sapphire, and fourth and sixth with Sapphire and Black Bess; S. Barlow, Esq., first with Carbuncle; Mr. Wm. Taylor second and third with Pizarro and Ellen Lancaster; W. Brockbank, Esq., fifth and seventh with Lord Lorne and Cymbeline; Mr. E. Pohlman eighth with Topsy.

#### ALPINE AURICULAS.

In the class for four dissimilar, R. J. Gorton, Esq., was first with Victoria, Miss Taplin, John Leech and Echo; second S. Barlow, Esq., with Diadem, Llewellyn, Dazzle and Unique; Mr. E. Pohlman third with four seedlings; Wm. Brockbank, Esq., fourth with Diadem, Mr. Thompson, Beatrice and Conspicua; Mr. R. Hays fifth with Diadem, Llewellyn and two seedlings. Single Alpines, shaded, and yellow centres.—Mr. J. Buckley premium with Diadem; Mr. E. Shaw first with same; S. Barlow, Esq., second and third with Mrs. Meiklejohn and Llewellyn; Mr. Geo. Geggie, Bury, fourth with Unique; Mr. E. Pohlman fifth with seedling. Alpines, pale centres.—R. Gorton, Esq., premium with Victoria; Mr. E. Pohlman first, third, fourth, and fifth with seedlings; R. Gorton, Esq., second with Goliath.

**POLYANTHUSES.**—Three dissimilar black grounds.—First Mr. J. Hilton, with Lancashire Hero, Cheshire Favourite, and Exile; Mr. William Taylor second with the same; William Brockbank, Esq., third with Blackbird, Cheshire Favourite, and Exile; fourth, Mr. J. Walkden, Sale, with Cheshire Favourite, Exile, and a seedling. Three dissimilar red grounds.—First, Mr. J. Hilton, with Lancer, Prince Regent, and George IV.; second, Mr. William Taylor with the same; third, William Brockbank, Esq., with the same.



Single plants, red grounds.—Mr. J. Hilton premium with George IV., third and sixth with Prince Regent and Sydney Smith; William Brockbank, Esq., first and second with George IV. and Lord Derby (seedling); Mr. William Taylor fourth with Lancer. In black grounds Mr. Walkden, premier and first with Cheshire Favourite; Mr. Hilton second with Exile; William Brockbank, Esq., third and fourth with Beauty of England and Lancashire Hero; Mr. R. Heys fifth with King.

FANCY AURICULAS.—There were two fine collections staged. First prize S. Barlow, Esq.; second, Mr. Councillor Bolton. In fancy Polyanthus only one collection was staged, for which a first prize was awarded to S. Barlow, Esq. Twelve Primroses, dissimilar.—First S. Barlow, Esq.; second Mr. Walkden, with fine plants.

Joseph Broome, Esq., Didsbury, exhibited a large and beautiful collection of stove plants in flower, among which was *Ataccia cristata* with ten spikes. There was also a very large, varied, and admirably arranged group of Alpine plants and Primulas from the Royal Botanic Gardens selected by Mr. B. Findlay.—F. D. HORNER, *Burton-in-Lonsdale*.

### HUGHES'S FIR-TREE OIL SPRAY PUMP.

WITH the object of using the well-known insecticide, Fir-tree oil more quickly and effectively to Roses, fruit trees, and large plants generally than could be effected by the hand-syringe or spray-distributor, the pump represented in fig. 67 has been introduced by the proprietor, Mr. G. G. Hughes. It is easy to work, the outflow from the nozzle not being intermittent with each movement of the handle, but continuous, either in a thin stream or fine spray at the will of the operator, the latter being the most economical method of distributing the insecticide. One person can work the pump and direct the solution with the greatest ease, indeed a lady could work it without fatigue. It is simply held in position by placing the foot on the base of the ring, and with the handle in one hand and the nozzle in the other trees or plants can be ex-



Fig. 67.

peditionously dressed for the destruction of insects. Having tried this spray pump, we are in a position to testify that it answers its purpose well.

### THE HUNTINGDON NURSERIES.

THE old and quaint county town of Huntingdon is famous if for nothing less than being the birthplace of Oliver Cromwell; yet in the environs is also to be found the nursery of Messrs. Wood & Ingram, devoted to the growth of popular classes of flowers, and in some score of houses, such as nurserymen know how to construct economically and utilise so well, I found much that was noteworthy.

Clematises are grown in a large house 84 feet by 20 feet, span-roofed, 10,000 plants being raised annually, some being grown to specimen size. Of the single-flowered varieties the best were Alba Magna, pure white, broad-sepalled flowers; Miss Bateman, white, chocolate anthers; Madame Van Houtte, white, mauve tinted; Henryi, large creamy white, one of the best outdoors; Lady Caroline Neville, French white, mauve hairs, very beautiful; and the Jackmanni alba, which is destined to become as great a favourite as this type; Gipsy Queen, dark velvety purple; Louis Van Houtte, bluish purple, six broad petals, very showy and free; Madame Grange, crimson-violet, red centre, beautiful; Purpurea elegans, violet purple, large, fine; Ascotiensis, azure blue, large and fine; Jackmanni, violet-purple, still one of the best, superba being an improvement upon it in size and colour; Fairy Queen, flesh with pink bar, very large and fine; Symeana, lavender, deeper bars; Mrs. Crawshaw, pink, pale bronzy bar, beautiful. Of the doubles, Duchess of Edinburgh, white; Belle of Woking, silver-grey, very fine; Countess of Lovelace, bluish lilac. There is a fine stock of that very fine conservatory winter-flowering climber—the very finest of all the Clematis under glass—viz, *indivisa lobata*, and which ought to have place in every greenhouse. The new hardy white Passion-flower *Constance Elliott* is grown in quantity; its ivory-white and sweet-scented flowers is sure to render it a general favourite.

Pelargoniums are grown extensively. One house 84 feet by 13 feet contained well grown examples in 5-inch pots for decorative purposes, the foliage deep green, and abundant flowers or trusses showing. The trusses are large, and the flowers large without being coarse, and the colour of the flowers clear. Only the commonest loam is used or road sidings, with Amies, a little bone, and soot. Finer plants cannot possibly be seen anywhere, and they show what a lot of trouble we give ourselves about soil when even the commonest may be utilised. Only the best decorative varieties are grown, amongst which are in Regal or Fringed, Duchess of Bedford, white, carmine spot; Duchess of Edinburgh, similar, but with a lake spot and heavier feather; Digby Grand, blue, dark blotch on upper petals, heavily fringed; Madame Thibaut, white and rosy carmine, maroon blotch, showy; Dr. Masters, crimson, black blotch, same colour on lower petals, and smaller blotch; Volonté Nationale, petals blotched rosy carmine, margined pure white; Volonté Nationale Album, white, promises to be equally good as a white, and finely fringed. In show, French, and spotted varieties, Corsair, carmine, crimson blotch, spots on lower petals, dwarf and fine; Decorator,

rich crimson, maroon blotch on top petals, very fine; Edward Perkins, scarlet, dark blotch, extra truss, very good; Fascination, carmine upper petals, rose lower petals, with white centre; Gold Mine, vermillion, maroon blotch on upper petals, white centre, large and good; John Bright, scarlet, maroon blotch, white centre, very free and fine; Martial, crimson maroon top blotch, fiery edge, fine and free; Lizzie, rosy carmine, crimson blotch on upper petals, carmine on lower, white centre, very free blooming; Mabel, maroon upper petals, lower petals rosy carmine, white centre, very beautiful; Mrs. Beckwith, lake, suffused white, maroon feather on upper petals, fine; Mermeris, red, maroon spots; Mrs. Gladstone, blush, crimson blotch, extra fine; Robert Green, purplish crimson, maroon blotch, effective; Rosetta, purple, maroon spots, very free; Triomphe de St. Maude, light purplish crimson, black blotch, very free blooming; T. A. Dickson, rosy crimson, heavily spotted, very free; Tommy Dodd, bluish white, crimson blotch, fine; Venus, white, delicate carmine spots, very free and good; Madame Charles Konig, pure white, of good form and substance, one of the best whites. The only fancy variety grown is Princess Teck, white, carmine spot, very attractive. There is a seedling of great promise, an advance upon Harry Buck. The flowers are large and of good form and substance, upper petals crimson, carmine shaded, and lighter on edge, deep maroon blotch, very clear, lower petals scarlet and clean (not marked as in Harry Buck), dense compact habit, and very free blooming.

That the bedding-out system is not quite so devoid of life as some represent is evidenced by the many large houses devoted to bedding plants, especially Pelargoniums. Of Tricolors one house contains 11,000 plants. Perhaps the finest of the Golden Tricolors is Masterpiece, fine broad black zone. Mrs. Henry Cox is as free as Mrs. Pollock, its markings being bright and intense, well defined rich crimson zone, bright yellow margin. This is considered the finest of the class and an excellent hedder. Macbeth has a very heavy zone and clear yellow margin, and very effective for bedding. Lady Cullum still holds its own as one of the best bedders, the colours being splendid; E. R. Benyon, maroon and red zone, well defined, capital bedder; Peter Grieve is a vigorous grower, with high colours; Prince of Wales must also be mentioned as intensely brilliant in its colours; Acme, narrow red zone and clear yellow edge, is bolder in leaf than most Tricolors; William Sandy is also very bright and a good grower, similar remarks applying to Victoria Regina, broad gold leaf margin and crimson zone. Florence, with its dark zone fringed crimson, is very effective. Sophia Dumaresque, Lady Cullum, and Mrs. Pollock still hold their own as constitutionally good, Mrs. Pollock being unapproached as an all-round bedder. Mrs. Strong has rich foliage and double scarlet flowers, very attractive.

In Silver Tricolors, Lass o' Gowrie is the best bedder, though Prince Silverwing is freer and less bright in its markings. Mrs. Laing also is good. Of Silver-edged, Chelsea Gem, bright silver edge, doubly rosy pink flowers, dwarf grower, capital edging kind, and one of the best general bedders. Avalanche has white flowers, which are produced freely. Flower of Spring may be named as one of the best bedders, also May Queen and Mrs. Vidler, fine silver edge and scarlet flowers. Viscountess Cranbrook is dwarf, clear white edge, and scarlet flowers; whilst Mrs. J. C. Mappin has white flowers with a pink eye, very attractive. Of Gold-leaved varieties, Crystal Palace Gem is still unsurpassed. Verona, however, is a good addition to this class, with plain gold leaf. Golden Superb is favoured with a zone and has crimson flowers, and considered the best of this section. Golden Brilliantissima has every leaf margined with yellow and white, the remainder pea green, a peculiar combination of variegation, small neat grower, and may prove useful for edging; indeed, it is considered a gem for that purpose.

Hollyhocks are numerous, there being thousands as strong and healthy as could be wished in 4-inch pots, fit for planting out at once. It is pleasing to see this noble flower again rising in favour, there being none grander in their season. Seedlings alone are grown, and very properly, as the named varieties are much more susceptible to the disease or fungus that has made such havoc with the Hollyhock of late years. Verbenas are a feature, dwarf and bushy, some 15,000 in single pots without a trace of mildew, bedding varieties being chiefly grown. The best white is White Queen; best pink, Lady Brooke; best purple, Mrs. Langtry; and best scarlet, General Gordon. Other good bedders are Eclipse, crimson; Blue King, bluish purple; Peacemaker, pink; Miss Nevill, white; and Othello, crimson maroon, suffused purple. Fine varieties for pots are Purity, white; Lady Brooke; Hamlet, orange crimson; Lord Brooke, scarlet, white eye; Striata, striped pink and white, quartering regular; The Fairy Queen, light ground, red centre; Compacta, white; Mabel, mauve; Fantastic, salmon pink, striped scarlet; Rev. Dawson Damer, scarlet; Victor Emanuel, mauve, tinted plum, light green eye; and Lustrous, scarlet, white eye.

Lobelias are in fine form; the favourites are Brighton, Swanley Blue, True Blue of the pumila section, Blue King being good. *L. pumila* Ingrami originated here, and it still is far the best variety. Dahlias exist in quantity of all the best Show, Fancy, Bouquet, Single, and Cactus sections. In a small house a seedling Carnation attracted attention, purple self, large, bold, smooth flower, of fine form and great substance, very sweet, and evidently of the tree type. Mango Pepper plants existing in quantity, but as this was the first season of growing it I could glean nothing respecting it. Pentstemons were looking healthy, and they are very useful for effect and cutting in late summer; Bouvardias cut back were pushing fresh growth strongly. Alfred Neuner, Vreelandi, Dazzler, Brilliant, and President Garfield are the favourites. In passing through some of the structures I noted Mesembryanthemum cordifolium and its variegated form so suitable for hot window boxes, where too much care is not given in watering, and that very fine plant for window boxes or brackets, the "Cape Ivy," *Senecio macroglossus*. Of Heliotropes, President Garfield and White Lady were fine. Marguerites seem in request, and *Salvia patens* also, the latter being especially valuable, as we have so few bright blue flowers with stems long enough for cutting. *Gynura aurantiaca*, a *Salvia*-like plant with purple stems, leaf veins, and hairs on the leaves is telling as a table plant when of moderate size, and it may be grown in small pots. Ivy-leaved Pelargoniums are present in quantity, and fine they are for pots, vases, and baskets, whether in or outdoor. Of those noticeable for their flowers are Masterpiece, magenta crimson, fine flowers and trusses, Bridal Wreath being the best white; and for bedding, Holly Wreath, variegated, pink flowers; and L'Elegante, creamy white variegation, both good edging sorts. Of Doubles, Gloire



d'Orleans, reddish-purple; Anna Pfitzer, salmon-rose; and Madame Crousse, blush white shaded rose. Of Chrysanthemums there is a full collection of all the leading varieties, and three houses 40 feet by 10 feet are devoted to Carnations and Picotees, of which the collection contains most of the best old and new varieties. *Hydrangea cyanoclada* has large trusses of blue flowers or bracts, there being no need to supply *H. hortensis* with iron filings to get blue flower heads now we have this.

Ferns of the decorative character, such as *Adiantum cuneatum*, *gracillimum*, *Williamsi*, *palmatum*, fine; *deflexum*, with the pinnae hanging or flaccid; *scutum* and *podophyllum*, having pink fronds in their young state; and *mandulum*; *farleyense* being grown extensively. The very finely divided *Pteris scaberula* is much in request for decorative purposes, and similar remarks apply to *Davallia bullata*. Of the bolder sorts *Asplenium bulbiferum*, *Doodia aspera*, and *Neottopteris Nidus* obtain most favour. That best of Silver Ferns, *Gymnogramma peruviana argyrophylla*, is fine.

In a large house 66 feet by 25 feet *Cobaea scandens variegata* in strong plants and number suggests the great value of this as a rapid climber for cool or unheated houses, it covering a large space in a season; and also for verandahs, balconies, running round windows outside, it is most useful, and in some respects invaluable. Part of the roof is covered with *Maréchal Niel* Rose worked on *Rêve d'Or*, on which it does better than on the Briar stock, being healthier, and the flowers are much larger, the buds resembling miniature Cabbages. Of Tree Carnations the best were *A. Alégatière*, scarlet; *Duke of Wellington*, purple; *Zouave*, red, fine; *Louisa Ashburton*, white, fringed, very fragrant; *Miss Joliffe*, pink; *Warrior*, scarlet; *Worthington Smith*, scarlet; *La Belle*, white; *Andalusia*, primrose-yellow; *Pride of Penshurst*, canary yellow, are amongst the best. Greenhouse *Rhododendrons* in their varied colours and delightful fragrance, with plants in 3 and 4-inch pots of *Choisya ternata* about a foot high were flowering profusely. A large deep pan contains that charming sweet Hawthorn-scented aquatic *Aponogeton distachyon* growing beneath the stage, and yet full of flowers and foliage. For growing in deep pans indoors, and tanks outdoors where it has a foot to 18 inches depth of water, it is one of the most desirable of aquatics. A few other notes must be reserved.—G.

(To be continued.)

## THE PRIMULAS.

(Continued from page 318.)

To conclude the notes upon the Primulas which have been published in this Journal during the past few months, a list of the species and principal synonyms is given, with references to the page upon which will be found a note describing their characters or culture. The names in italics are synonyms, those with asterisks prefixed being hybrids.

*Primula Allionii*, Loisl, *Journal of Horticulture*, page 269, vol. xi., 3rd series.

<i>alpestris</i> , Schur. = <i>elatior</i>	"	"
* <i>alpina</i> , Schleich.	"	"
<i>altaica</i> , Lehm.	"	"
<i>altissima</i> , Don. = <i>reticulata</i>	"	"
<i>amæna</i> , Hort. = <i>cortusoides</i>	"	"
* <i>Arctotis</i> , Kern.	"	269
<i>Aucherii</i> , Jaub & Spach.	"	270
<i>Auricula</i> , L.	"	270
<i>Auricula</i> var. <i>Spr.</i> = <i>Balbisii</i>	"	"
<i>auriculata</i> , Lam.	"	311
<i>Balbisii</i> , Lehm.	"	311
<i>Bellunensis</i> Venzo.	"	311
* <i>Berninae</i> , Kern.	"	312
* <i>biflora</i> , Huter	"	312
<i>Boveana</i> , Dene.	"	312
<i>cadinensis</i> , Hort. = <i>daonensis</i>	"	"
<i>calycina</i> , Duby	"	312
<i>Candolleana</i> , Reich. = <i>integrifolia</i>	"	"
<i>capitata</i> , Hook.	"	312
<i>carniolica</i> , Jacq.	"	312
<i>carpathica</i> , Fuss. = <i>elatior</i>	"	"
<i>ciliata</i> , Moret. = <i>Balbisii</i>	"	"
<i>Clusiana</i> , Tsch.	"	356
<i>cortusoides</i> , L.	"	356
<i>Coutii</i> , Hort. Veitch = <i>Boveana</i>	"	"
<i>crenata</i> , Lam. = <i>marginata</i>	"	"
* <i>cridalensis</i> , Gasm.	"	356
<i>denticulata</i> , Sm.	"	356
<i>dentata</i> , Don. = <i>dentiflora</i>	"	"
<i>dentiflora</i> , Andr.	"	396
<i>denudata</i> , Gasm. = <i>farinosa</i>	"	"
* <i>digenea</i> , Kern.	"	396
* <i>Dinyana</i> , Lag.	"	396
* <i>discolor</i> , Leyb.	"	396
* <i>Dumoulinii</i> , Stein	"	396
<i>elatior</i> , Jacq.	"	419
<i>elliptica</i> , Royle	"	396
<i>erosa</i> , Wall.	"	396
<i>Facchinii</i> , Schott.	"	396
<i>farinosa</i> , L.	"	419
<i>Fedtschenkoi</i> , Regel.	"	420
<i>finmarchica</i> , Jacq. = <i>sibirica</i> var.	"	"
* <i>Flörkeana</i> , Schrad.	"	420
<i>floribunda</i> , Wall.	"	420
<i>Fluggeana</i> , Lehm. = <i>elatior</i>	"	"
* <i>Forsteri</i> , Stein	"	466
<i>Freyeri</i> , Hladn. = <i>carniolica</i>	"	"
<i>Freyeri</i> , Hoppe. = <i>venusta</i>	"	"
<i>frondosa</i> , Janka. = <i>farinosa</i>	"	"
<i>glaucescens</i> , Mor. = <i>calycina</i>	"	"

<i>Primula globifera</i> , Griff. = <i>capitata</i>		
<i>glutinosa</i> , Wulf. <i>Journ. of Horticulture</i> , page 466, vol. xi., 3rd series		
<i>glutinosa</i> , All. = <i>Allionii</i>		
* <i>Göblii</i> , Stein	"	466
* <i>gracilis</i> , Stein	"	466
<i>grandis</i> , Tratt.	"	466
<i>grandiflora</i> , Bast. = <i>carniolica</i>		
<i>Griffithii</i> , Watt. = <i>obtusifolia</i> var.		
<i>Henryi</i> , Hort. = <i>denticulata</i> var.		
<i>helvetica</i> , Don. = <i>pubescens</i>		
<i>Heydei</i> , Watt.	"	466
<i>hirsuta</i> , Reich. = <i>daonensis</i>	"	"
<i>Hoffmeisteri</i> , Klot. = <i>denticulata</i>		
<i>Hornemanniana</i> , Lehm. = <i>farinosa</i>		
<i>humilis</i> , Steud. = <i>pusilla</i>		
<i>Huteri</i> , Stein	"	466
<i>hybrida</i> , Gasm. = <i>Flörkeana</i>		
<i>imperialis</i> , Jungh. = <i>prolifera</i>		
<i>inodora</i> , Hoffmg. = <i>elatior</i>		
<i>integrifolia</i> , L.	"	467
<i>integrifolia</i> , Scop. = <i>carniolica</i>		
<i>intermedia</i> , Hort. = <i>alpina</i>		
<i>intricata</i> , var. <i>carpathica</i> = <i>elatior</i>		
<i>involuta</i> , Wall.	"	467
<i>Jellenkiana</i> , Frey. = <i>carniolica</i>		
<i>japonica</i> , A. Gray.	"	538
<i>Kaufmanniana</i> , Rgl.	"	538
* <i>Kernerii</i> , Göbl. & Stein.	"	538
<i>Kitaibeliana</i> , Schott. = <i>spectabilis</i> var.		
<i>laevigata</i> , Duby. = <i>calycina</i>		
<i>latifolia</i> , Lap. = <i>viscosa</i> var.		
<i>lateriflora</i> , Goup. = <i>elatior</i>		
<i>lineariloba</i> , Hook. fil. = <i>Stuartii</i> var.		
<i>longiflora</i> , All.	"	538
<i>longifolia</i> , Curt. = <i>auriculata</i>		
<i>longiscapa</i> , Led. = <i>altaica</i>		
<i>lutea</i> Lam. = <i>Auricula</i> .		
<i>luteola</i> , Rupr.	"	539
<i>macrocarpa</i> , Hook. fil. = <i>Stuartii</i> var.		
<i>macrophylla</i> , Don. = <i>Stuartii</i>		
<i>magellanica</i> , Lehm.	"	577
<i>marginata</i> , Curt.	"	577
<i>minima</i> , L.	"	578
<i>minutissima</i> , Jacquem	"	578
<i>mistassinica</i> , Michx.	"	578
<i>mollis</i> , Hook., <i>Journal of Horticulture</i> , page 117, vol. xii., 3rd series		
<i>montana</i> , Opiz. = <i>elatior</i>		
<i>Moorcroftiana</i> , Wall. = <i>Stuartii</i>		
<i>multiflora</i> , Hort. = <i>carniolica</i>		
<i>multiceps</i> , Frey. = <i>carniolica</i>		
<i>Munroi</i> , Ldl. = <i>involuta</i>		
* <i>Muretiana</i> , Moritzi	"	117
<i>Muretii</i> , Reich. = <i>Muretiana</i>	"	"
<i>nana</i> , Wall. = <i>petiolaris</i>		
<i>Nelsoni</i> , Hort.	"	117
<i>nivalis</i> , Turcz. = <i>altaica</i>	"	"
<i>nivalis</i> , Pall.	"	117
<i>nivalis</i> , Hort. = <i>viscosa</i>	"	"
<i>nivea</i> , Hort. = <i>viscosa</i>		
<i>norvegica</i> , Retz. = <i>sibirica</i>		
<i>obconica</i> , Hance. = <i>poculiformis</i>		
* <i>Obristii</i> , Stein.	"	117
* <i>obovata</i> , Huter.	"	117
<i>obovata</i> , Wall. = <i>floribunda</i>		
<i>obtusifolia</i> , Royle.	"	117
<i>œnensis</i> , Thom. = <i>daoneusis</i>		
<i>Olga</i> , Regel.	"	147
<i>orientalis</i> , Willd. = <i>nivalis</i>		
<i>Palinuri</i> , Pet.	"	147
<i>Pallasii</i> , Lehm. = <i>elatior</i> .		
<i>Parryi</i> , Gray	"	147
<i>paucifolia</i> , Hook. fil. = <i>denticulata</i>		
<i>pedemontana</i> , Thom.	"	148
<i>penduliflora</i> , Kern.	"	148
<i>Perreiniana</i> , Flugg. = <i>elatior</i>		
<i>petiolaris</i> , Wall.	"	148
* <i>Peyritschii</i> , Stein	"	148
<i>pinnatifida</i> , Franch	"	207
* <i>Plantæ</i> , Brügg	"	207
<i>poculiformis</i> , Hook. fil.	"	207
<i>polliniana</i> , Moret = <i>spectabilis</i>		
* <i>Portæ</i> , Huter	"	207
<i>prænitens</i> , Ker = <i>sinensis</i>		
<i>prolifera</i> , Wall	"	207
<i>pseudo-acaulis</i> , Brügg	"	207
<i>pubescens</i> , Jacq.	"	207
<i>pulcherrima</i> , Hort. = <i>denticulata</i>		
<i>pulverulenta</i> , Edgew. = <i>petiolaris</i>		
* <i>pumila</i> , Kern	"	274
<i>pulchra</i> , Watt	"	274
<i>purpurea</i> , Royle = <i>Stuartii</i> var.		
<i>pusilla</i> , Wall	"	274
<i>pusilla</i> , Goldie = <i>mistassinica</i>		
<i>pyramidalis</i> , Sieb. = <i>japonica</i>		
<i>Raidii</i> , Duthie	"	274
<i>reticulata</i> , Wall	"	274
<i>rhetica</i> , Gaud. = <i>pubescens</i>		
<i>rhetica</i> , Koch = <i>alpina</i>		
<i>rosea</i> , Royle	"	274
<i>Roylei</i> , Hook. fil. = <i>obtusifolia</i>		



*Primula* Rusbyi, Greene, *Journal of Horticulture*, page 275, vol. xii., 3rd series

* <i>salishurgensis</i> , Schott	"	275	"
<i>Sandersiana</i> , Royle = <i>minutissima</i>	"		
<i>sapphirina</i> , Hook. fil. and Thom.	"	275	"
<i>Sauteri</i> , Schott = <i>minima</i>	"		
<i>scapigera</i> , Hook. = <i>petiolaris</i>	"		
<i>Scotica</i> , Hook. = <i>farinosa</i>	"		
<i>sempervirens</i> , Loisl = <i>sinensis</i>	"		
* <i>serratifolia</i> , Gussm.	"	275	"
<i>sertulosa</i> , Kickx = <i>sinensis</i>	"		
<i>sessilis</i> , Royle = <i>petiolaris</i>	"		
<i>Sieboldi</i> , Mor.	"	275	"
<i>Sibirica</i> , Jacq.	"	275	"
<i>Sibthorpi</i> , Reich. = <i>vulgaris</i> var.	"		
<i>sikkimensis</i> , Hook.	"	275	"
<i>simensis</i> , Hochst = <i>Boveana</i>	"		
<i>sinensis</i> , Ldl.	"	291	"
<i>spathulacea</i> , Jacquem. = <i>elliptica</i>	"		
<i>spathulata</i> , Hook. fil. = <i>minutissima</i>	"		
<i>speciosa</i> , Don = <i>reticulata</i>	"		
<i>speciosa</i> , Gussm. = <i>farinosa</i>	"		
<i>spectabilis</i> , Tratt	"	291	"
<i>Stelviana</i> , Vulp. = <i>daonensis</i>	"		
* <i>Steinii</i> , Obrist.	"	291	"
<i>Stracheyi</i> , Hook. fil. = <i>minutissima</i> var.	"		
<i>stricta</i> , Hornem. = <i>farinosa</i>	"		
<i>Stuartii</i> , Wall.	"	291	"
* <i>Sturii</i> , Schott.	"	291	"
<i>suffrutescens</i> , Gray	"	292	"
<i>tridentata</i> , Don = <i>petiolaris</i>	"		
<i>truncata</i> , Lehm. = <i>minima</i> var.	"		
<i>turkestanica</i> , Rgl. = <i>nivalis</i> var.	"		
<i>tyrolensis</i> , Schott.	"	317	"
<i>undulata</i> , Fisch = <i>altaica</i>	"		
<i>venusta</i> , Host	"	318	"
* <i>Venzoi</i> , Hoter	"	318	"
<i>venzoides</i> , Hnter = <i>Venzoi</i>	"		
<i>verticillata</i> , Forsk	"	318	"
<i>viscosa</i> , Vill.	"	318	"
<i>viscosa</i> var. <i>major</i> = <i>Peyritschii</i>	"		
<i>vulgaris</i> , Huds.	"	318	"
<i>Warei</i> , Stein = <i>farinosa</i>	"		
<i>Wulfeniana</i> , Schott = <i>spectabilis</i>	"		

—D.

### SELECT NARCISSI.

THE Narcissi are becoming far more popular than the most sanguine anticipated a few years ago, but it is certainly not the minute fanciful distinctions which are as puzzling to the connoisseur as to the novice that will assist in making them the plants for the masses; on the contrary, the public taste is good as a rule, and requires something attractive, and at the same time reasonably cheap. I need hardly refer to their complete hardiness, but as an instance I will just remark on an exceptional test which came under my own observation during the recent severe frost. The case in point is that of *Narcissus pallidus præcox*, the lovely new Pyrenean Daffodil, which when the last long-continued spell of frost set in was in bud, and numbers of them fully 4 inches high. In this stage they were compelled to remain for upwards of three weeks, during the first of which it thawed rapidly during the day with severe frost each succeeding night, the ground in consequence was in a bad condition about them, and the test exceptionally severe. At the same time they withstood it bravely, and every flower ultimately developed well. *N. monophyllus* had the protection of an old light and a couple of bags, and it flowered equally well.

In my present note I have thought it may be of service at this time, when Daffodil displays are so numerous, to describe briefly some of the best and most distinct contained in this genus of golden flowers, so that any wishing to make a choice selection of them may do so readily. It might be of interest if I take them, or at least the earliest portion of them, in the order in which they flower. In ordinary seasons *N. pallidus præcox* is amongst the earliest, its flowers coming in February abundantly, and a few in the latter part of the previous month, it has proved to be a most valuable early variety, is somewhat variable in form, size and colour, that most generally seen being of a soft sulphur white; it grows 8 inches high with slightly drooping flowers, in some forms the trumpet is rather straight and inclined to the creamy white of *N. cernuus*, while in others it is bold and well reflexed. The next to flower are *cambricus* and *obvalaris*, the latter being the true Tenby Daffodil. The former has flowers with sulphur white perianth segments and yellow trumpet, while in the latter the divisions of the perianth and also the trumpet are of a bright golden yellow. The trumpet is beautifully formed and well recurved at the mouth, always assuming a stiff sturdy habit of growth and invaluable for pots for early flowering for the border or rockery; at about the same time we have *nanus*, *minor*, and *minimus* bursting into flower. These, from their diminutive growth, are specially adapted for the rockery or raised border, hardy, sufficiently showy for pot culture perhaps, but very pleasing and attractive for the purpose named.

Then comes the native Lenten Lily, *N. Pseudo-Narcissus*, beautifully adapted for naturalising in woodlands or on grassy banks and slopes under trees—anywhere, in fact, this seems to thrive, and annually furnish abundant blossom. This is followed by *N. lobularis*, together with the various forms of *spurius*, the best of which are *N. spurius major*, and *N. spurius coronatus*, both bold and showy flowers of rich golden hue. At this time a great number of *Narcissus* and *Daffodils* are in flower, for in

ordinary seasons these will be in flower from the middle to the end of March. And here I would not omit the large and bold flowers of the common double Daffodil, *N. Talamoniensis plenus*, a good useful flower for naturalising, or for the margin of shrubbery borders and heds—in any conspicuous place, in fact, it may be introduced among other plants with good effect, but nowhere in overwhelming quantity to produce a monotony.

Amidst all this golden colour comes the matchless flowers of *N. cernuus*, with the varieties *pulcher* and *N. cernuus plenus*. These are among the most exquisite of the whole race of Daffodils. The typical species is the drooping white Spanish Daffodil, others call it the Nodding White Daffodil; but call it what we may, it is lovely in the extreme. The perianth is silvery white and the same length as the trumpet, which latter on first opening is of a pale primrose hue, which changes to white in the second or third day. This is noticeable in the other forms of this choice Daffodil. It is impossible to overestimate either its value or loveliness, and being of equally easy culture as the commoner flowers of this family it should be grown by all.

While speaking of the delicate grace and beauty of *N. cernuus* I am reminded of another equally chaste and good, this is *N. moschatus* and its variety *N. moschatus albicans*; in the type the divisions of the perianth and also trumpet are white, in the latter the trumpet is somewhat larger and fringed with pale primrose, and in all it is somewhat larger. There is, however, considerable variation in the growth and general strength of home-grown roots as against those collected in a wild state, which much favours the former. Before quite departing from the *moschatus* forms I may remark that it is not so well adapted for pot culture as many, since it will not endure artificial heat nearly so well, even when judiciously applied. It is never better than when allowed to flower in its own way. The lovely princeps, with its giant sulphur trumpet and sulphur white perianth, is a charming flower for any purpose, and one deserving extended culture.

Then if we turn for a moment to glance at the various *N. bicolors*, such as *Empress*, *Horsfieldi*, *Maximus*, also called *grandis*, together with *nobilis* and *minor*, we have a set of the most glorious of all the Daffodils. Of strong and vigorous constitutions, each bulb producing when established three or more of their lovely blossoms, which are unequalled for all floral embellishments. Arranged among other things in epergnes and for table decoration generally their drooping or horizontal cups, as the case may be, are most pleasing; in short they rank among the very finest of the group, and are foremost among the so-called grand trumpeters. Where all are equally good it is useless to particularise; suffice it to say that those named possess the same stately habit of growth, and are all remarkable for the great substance of their flowers. In each case the trumpet is a golden yellow with pure white perianth. Not only do these stand out conspicuous in the genus to which they belong, but they hold a front rank among the most beautiful of hardy spring bulbs.

We have also some very fine forms in *N. Emperor* and *N. rugilobus*, which in point of colour are very near akin, but in point of fact the former is a giant as compared with the latter; it is in reality one of the largest in cultivation. The trumpet is yellow, with pale sulphur segments. The same description will fully recognise *N. rugilobus*, which, by the way, flowers fully ten days earlier than the Emperor. In *Narcissus maximus* we have the most lovely of all the single golden Daffodils, and also the largest; the cup is beautifully expanded, while the perianth segments are noticeable for a peculiar though constant twist, constituting a distinguishing character.

Leaving the Trumpet or Ajax section, I will briefly turn to the equally valuable *N. poeticus* and its forms. All these are extremely useful as cut flowers, and where such are in demand should be grown in quantity; those most valuable are *N. poeticus augustifolius*, *N. poeticus poetarum*, and *N. poeticus ornatus*. The first named is earliest to flower, the flowers being pure white with a rose-margined cup; the second named has very large pure white flowers, the cup being margined with crimson; the last named is the most valuable of all, the flowers are beautifully formed, and nearly circular, the segments in nearly all cases overlapping each other, of good endurance in a cut state, and comes in naturally at Easter time when flowers for church decoration are in great request, therefore they are doubly valuable, to which may be added their unrivalled fragrance. There are still other varieties of Poet's Narcissus, as *poeticus plenus* and others, but those above are so much earlier as to merit the greater attention. The last section to which I shall refer is the Peerless Daffodils, *N. incomparabilis* and varieties. These are far too vast in point of numbers, or at least names, and may readily be reduced to a few of the most distinct. Mary Anderson may receive a premier place, it is the single Orange Phoenix, the perianth pure white, and the cup bright orange-scarlet; it attracts attention everywhere, and well deserves extensive cultivation. In combination of colour it is unique, and will no doubt be largely grown in the future. Stella forms another pleasing and good form, as well as an early bloomer, and which is being largely used. The great Sir Watkin is the giant of all, a tremendous leap, as it were, into the future, and which has left all else far behind in so far as size is concerned. *Incomparabilis*, *Glow*, *albidus*, *Leedsii*, are others very good and distinct. The list of names in this section is simply bewildering, and doubly so on tracing a catalogue only to find after all the varietal or complimentary names employed, that the perianth is sulphur, and the cup yellow, varied only now and again by the cup being either large or very fine.

Among the *Leedsii* varieties *L. amabilis* is worthy of note, the cup being conspicuously long, and primrose colour at first, then changing to white, the perianth also white. There are other good and useful varieties well worthy of culture, but which require careful selection, beside which



we have the three double forms of incomparabilis—viz., Double Sulphur, Phoenix, double Orange Phoenix, and the well known Butter and Eggs variety. All these are useful pot plants and valuable as cut flowers, the Sulphur especially so on account of its large creamy-white flowers, which from established bulbs are of great size and substance; this cannot be too strongly remembered for any purpose where choice cut flowers are needed.

In the foregoing remarks I have only given the leading varieties of each section, all equally good and useful for the garden, the conservatory, the rockery, or for naturalising. It may also be noted that those grown in pots the first season may be planted out in clumps undisturbed, and where they will add beauty in years to come to beds, borders, and shrubberies alike, so that by annually purchasing a few for potting, and after flowering to be transferred to beds and borders outside, a gay spring garden may soon be made, and thus form a goodly collection of these choice spring bulbous plants.—J. H. G.

### ORANGE CULTURE IN FLORIDA.

In a manual entitled "Sunny Florida," published at 30, Fleet Street, and giving a great variety of information concerning this American State, is a chapter upon Orange culture, which we have thought worthy of reproduction. The cultivation of the Orange has become a highly important industry, and so many persons from this country are either already engaged in it or are preparing to do so, that the following remarks cannot fail to be instructive.

Whether an individual buys a grove already planted, or land on which to do his own planting, he needs to know enough to select a location most favourable to success. The Orange has been grown successfully on all classes of land in Florida, from the drained swamp-land to the high, poor, black-jack ridges. Nature planted her groves in the swamps and hammocks because circumstances were there more favourable to her purpose and ability. The forest fires which annually swept over the Pine woods could not reach the young Orange trees planted in the swamps and hammocks. Nor were the cattle, especially in the swamps, so likely to cut down the young trees. In addition to these, Nature provided against frost by first planting under shelter of trees, and, where the frost was most severe, on the south or south-east side of our many beautiful lakes or rivers. Of course, under these circumstances, the Orange had to pay a high premium to the forest trees for their protection. It had to yield up to them the largest amount of the fertility of the soil, and hence never attained the large proportion, graceful form, and fruitfulness of the cultivated tree. These trees also bore sour fruit only.

The Orange is not indigenous to Florida. It was evidently brought to this country by the Spaniards, and at a time prior to the introduction of the Sweet Orange into Europe. When, later, the Sweet Orange was brought to this country, the pollen of the Sweet Orange fertilised the flower of the sour, and in the next generation produced the hybrid "Bitter-sweet," now common in the wild groves.

While Florida soil, of almost any kind, will produce the Orange, there are some soils better adapted to the growth of the Orange than others. A naturally well-drained but moist soil should be chosen in preference to the poorly drained, for two reasons. First, a deeply drained soil will allow the roots of the trees to penetrate the earth more deeply, and hence give to them more feeding surface. Second, where the roots are deeply embedded in the soil they will allow deeper cultivation with the plough instead of the hoe. The roots will not grow beneath a level continuously saturated with water; hence, to cultivate deeply such trees as stand on a poorly drained soil, necessitates the constant cutting of the roots on which the trees depend for life. I have seen many groves damaged and many trees destroyed by deep cultivation of trees planted in deep soils.

The richer the land the more vigorously the Orange tree will grow, and the more abundant will be its fruit. The Orange tree is an abundant feeder, and provided the soil is healthful to the plant it is hard to get it too fertile. Hammock land, or land producing hard wood, is generally more fertile than Pine land, and hence the trees do better, usually, on such land. The hard wood indicates the presence in the soil of more potash, which is consumed largely in the production of the fruit of the Orange. This, however, is soon exhausted after the trees come into full bearing, and needs to be supplied, as it does on the Pine lands from the first, in order to secure the best results. The better kind of Pine land is well adapted to the growth of the Orange, especially when the land is gently rolling, and some Hickory is found mixed with the Pine. Pine with black-jack Oak is a healthful soil, but is usually deficient in humus and nitrogenous fertilisers. These should be furnished with such fertilisers.

A rolling surface, with tall Pines thickly standing upon the land, indicates a fairly fertile soil, and well adapted to Oranges.

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The next thing that may be considered is suitable transportation, proximity to lines of railroads or to navigable streams. Railroad transportation is cheaper and less damaging to fruit than waggon. Water transportation is better than either. It is well to be in reach of competing lines, for then the producer may be sure of reasonable freight.

Care should be taken to plant groves where they are least likely to be damaged by frost. Much has been said about the frost line in Florida, but the settler will have to go below Cape Sable to find the line where frost never appears in Florida. I have frequently, since I have been in the State, known of its effect upon tender vegetation in every county in the State. In the same latitude, exemption from frost damage depends largely upon the presence of moisture in the atmosphere, and hence upon the presence of bodies of water—the wider the surface of water the better. Where water is at hand, the south or south-east side affords the best protection. Our cold winds are mainly from the north-west. When they come from the north-east and generally from the west, the cold is greatly moderated by the influence of the Gulf Stream. When a cold north-west wind passes over a considerable body of water, it is so saturated with warm vapour arising

from the water as to greatly raise the temperature of the atmosphere and check the damaging effects of the frost.

Many of the largest wild groves were cut down years ago, before the Orange interest started, for planting Cotton and Sugar Cane. But many smaller groves were standing when the writer first came to this State, a little less than twenty years ago. These have since been budded, and are now yielding sweet fruit.

The rolling lands of our peninsula, especially in the vicinity of lakes, furnish many picturesque and favourable locations for Orange-growing.

The Orange, however, is not so delicate as to need entire protection from frost. I have seen it fruiting in the open air along the southern line of Georgia. It has for a century been grown to some profit on the coast islands of Georgia. It is grown in some parts of Italy where there are occasionally snowfalls, and one variety is grown in Japan, where winter snows are usual.

Several plans are employed for propagating the Orange: planting sour stumps taken from the wild grove, and budding with sweet varieties; planting sweet unbudded stock; planting sweet stock budded with special varieties; and planting sour stock grown from seeds of sour Orange and budded with sweet varieties. The last is rapidly becoming very popular. The sour stock is not so liable to some diseases that attack the sweet stock. It is more hardy; it grows more rapidly; fruits earlier and more abundantly; and some of us think we can detect a spiciness and richness of flavour not found in fruit budded on sweet stock. As a rule, the budded stock is now preferred to the sweet seedling, because the trees come into bearing sooner.

In saving the seed for planting care should be taken to prevent their becoming dry, as they are very hard to germinate when once thoroughly dry. When taken from the fruit they should be put at once in a box containing moist earth, and so kept till time for planting. Care should be taken not to keep the soil in which the seed are placed so warm as to cause them to sprout before the time for planting.

The best result the writer ever had in obtaining a good stand of plants, the fruit was allowed to decay in barrels till the seed readily separated from the fruit. The seed were then washed out and put into a barrel with alternate layers of moist sand. Careful watch was kept over the seed to note the first indication of sprouting. The land for the nursery was then laid off with a plough, and the seed dropped in the furrow and covered to a depth of 2 inches. They came up as readily and uniformly as corn. When the plants are 3 or 4 inches high they should be drawn and transferred to the nursery, and set at a distance of 6 inches by 24 inches. If well cultivated and fertilised, they are ready for budding the second or third year. The buds can be put in at any time the sap is flowing readily, which is indicated by the bark being easily separated from the wood by the point of the knife. If the bark does not part readily from the wood, better stimulate your trees by giving them a good dressing of manure and good working, as these will soon start the sap and help the trees.

It is usual to set out trees into the fields one year after budding. But, with as good results as I have known, the buds were inserted with last flow of sap in the fall, remained dormant during winter, and during the next spring the sap was allowed to start only so far as to swell the buds, when the tree was cut back to within an inch of the new bud, and transplanted to its position in the field. In four years thereafter some of the trees were in bearing. Distances between trees in the grove should vary with the character of the tree to be planted. Twenty-one feet distance between sour-stock budded, twenty-five between sweet-stock budded, and thirty between seedlings, are good distances to observe.

Of course, the better prepared the soil in which the trees are to be set, the better the results will be. If time and means are at the command of the planter, it is best to take up all the stumps and thoroughly break the ground, by giving to it several ploughings and harrowings, till the surface is well levelled. If the stumps are allowed to stand upon the ground, they will, for some years, hinder and add to the cost of cultivation. They will further furnish a cover for insects, and food for the white ant, or "wood-lice," which, as the dead wood disappears from the ground, force the white ants to feed upon the roots of the Orange trees, frequently with fatal effect to the trees. Thoroughly levelling the surface will enable the planter to set his trees a uniform depth.

The richer the soil is made, provided no manures are added that will induce fermentation, the more rapidly the trees will grow, the better will they resist the influence of disease, insects, and cold, to which they are subject. Fertilising should be done in the spring or early summer, so as not to induce a late and winter growth of new wood, which would subject the trees to damage from frost. The trees should not be set deeper in the soil than they grew in the nursery. It is better to set them a little high than too low. This rule should be observed especially in low or flat lands.

### PRIMROSES AND PRIMROSES.

"A Primrose by the river brim,  
A yellow Primrose was to him,  
And it was nothing more."

THOSE Primroses by the river brim or from the woodland's shade differ materially from the Primrose of the garden. Unless the garden Primrose can have its habitat under as nearly as possible the same conditions as it enjoys in a natural state its form becomes smaller and more circular, the colour is not so deep, and the perfume not so sweet and distinct. In large gardens where each specimen may have its own space and its own treatment such deterioration may be avoided; but in a small garden where Roses are more the consideration the Primrose sometimes suffers from contact with the richer soil required by the Rose in the way I have described; and it is refreshing to scent and sight to see the genuine stars of the woods and lanes in all their delicious glow of the softest and most luminous gold displaying their beauty lavishly around.

I think we are too covetous. Surely smaller quantities might suffice for our decorations in memoriam wreaths, and our badge-bunches on Primrose day might out of consideration for the flower so loved by our late



chief be limited. Massed flowers are never beautiful; grouping or arranging (two or three blossoms, a bud, and a leaf) is wholly different, far more pleasing, natural, and effective. One shudders to think how many plants must be trodden, mutilated, even destroyed, to gratify the desire or enormous quantity.—A. M. B.

#### REVIEW OF BOOK.

*Report of Observations on Injurious Insects During the Year 1885.*  
By ELEANOR A. ORMEROD, F.R.M.S., &c. Simpkin, Marshall & Co.

THIS report—the ninth published by Miss Ormerod—testifies to the painstaking and perseverance with which she has followed up her researches, which have made her a dangerous enemy to our many insect foes. It testifies also to the increase of knowledge on this subject amongst gardeners and farmers, many of whom are now becoming careful observers, and ceasing to be led by old beliefs or hasty conclusions. In her preface Miss Ormerod notes the important fact, that by the re-arrangement of the cases representing destructive insects and the results of their operations, exhibited at the South Kensington Museum, an easy plan of reference has been adopted, and the latest information given; and the figures accompanying this report render it of greater value.

Taking the season as a whole, 1885 does not appear to have been one in which horticulture suffered much through the attacks of insects. I have already remarked in these pages that hosts were killed by the unfavourable weather of the early summer. The tribe that specially flourished was the aphid tribe, the long drought that affected most parts of Britain helping on their rapid increase, while also making plants less able to withstand them. During the autumn surface caterpillars were numerous in some places; but Miss Ormerod points out that the snow, by its moist and penetrating influences, doubtless killed many of these that might otherwise have lived on till spring to resume their operations. Of the troublesome aphides of the year, conspicuous was the "collier," or hear species (*A. rumicis* of Linnaeus). In connection with remedial measures for this aphid, Mr. J. W. Crompton suggests the use of alkali waste, a product nearly allied to gaslime, and as efficacious for destroying insects in any stage when worked into the soil. Mangolds and Turnips swarmed with two or three species of the fly, and Cabbages were rendered worthless by *A. rapae*, and also covered in some gardens by the tiny powdered wing, or snowfly. The corn aphid, or dolphin, was very generally reported both Wheat and Oats suffering, the dry weather aggravating the evil. It was observed that the crops cut earliest escaped comparatively. These were often accompanied by the Wheat midge, *Cecidomyia tritici*. To the Oat crop in Ireland some damage was caused by the grubs of the familiar *Tipula oleracea*. The increase of it these recent years is to be attributed, one grower thinks, to the neglect of deep trenching, and the method of barrowing being often had. The hardness of the young "daddy longlegs" is shown by their defying lime, soot, superphosphate, and even salt. Turning out cattle on infested ground checks the progress of the insect by their tramping and close eating.

A few years ago rather a sensation was created amongst the growers of Strawberries by discovering that the fruit was preyed upon by several species of ground beetles which had been previously supposed to be entirely carnivorous. Since then it has been noticed that another ground beetle, *Steropes madidus*, eats the roots of the Mangold at night, and on a Fern it actually destroyed about one plant in ten during last June. The larvae of weevils (*Otiorynchi*) were also found abundant in the Mangold in several places. From some cause unknown the garden chafer, *Brachynema*, or "chovees" (*Phyllopertha*), was plentiful last year, and though the grubs chiefly infest grass lands they occur also at the roots of several garden plants; and besides, the beetles themselves have been taken eating the flowers of our fruit trees. As the beetles generally assemble in parties it is not difficult to kill numbers when we know their period.

Several gardeners reported, it seems, the occurrence of the caterpillars of the small swift (*Hepialis lupulinus*) at the roots of winter Beans. It has also been taken up with the roots of other garden plants, such as the Parsnip, the Lettuce, and Celery. Although the circumstance is not remarked upon in the report, from statements and specimens sent to this Journal the nearly akin insect, *H. humuli*, has been troublesome in gardens as well as on the Hop. Reference is made by Miss Ormerod to another fact, also indicated by these pages, that millipedes or false wireworms have either become much more numerous of late or their ravages are more observed. One curious circumstance is that they transfer themselves from one spot to another, sometimes by a united migration, and a gentleman writes that he crossed a swarm of them along a country road, and shuddered to hear the cracking noise under his feet as he trod, caused by their hard coats. Small in size as they are, most of the millipedes live about two years. The specially troublesome jump is that of the snake millipedes. Salt is found to kill them quickly, though many applications, fail. Soot is said to drive them away in disgust.

An interesting portion of this report concerns the farmer more particularly, having reference to the alarming mischief done by the warble or ox fly (*Astus bovis*), not merely commercially, but Miss Ormerod considers the presence of maggots occasions the death of some animals suspected to have been killed by disease. The enormous prevalence of the pest is proved by careful statistics given with regard to hides, and at a certain date, when it is the "warbled season," there are frequently more unsound than sound hides in the market. Although a variety of applications have been recommended as destructive to the maggot it is still more important, if possible, to keep the flies off the cattle, and prevent oviposition. For

this end anointing with train oil, or some compound of it, in the summer is strongly advised.



#### FRUIT FORCING.

**PEACHES AND NECTARINES.**—*Early Houses.*—The fruit now swelling and colouring fast will require a circulation of air in order to secure flavour, but it should be given carefully during the prevalence of cutting winds, placing some netting over the ventilators. Finish stopping and tying the shoots. Elevate the fruit well above the foliage by placing pieces of lath on the trellis for them to rest upon, guarding against crowding or shading with more young wood than is needed for next year's supply of fruit. Continue syringing until the fruit commences ripening, and be very careful to employ water that will not leave a stain upon the fruits, some water leaving a deposit of lime that detracts from their appearance. Inside horders should be well watered and covered with light non-conducting material that will keep in moisture until after the crop is gathered. Look after outside horders, and be very careful in the removal of covering until we have a change to warmer weather. The recent winter has proved the value of inside horders, as with a liberal root extension in inside borders the roots are kept in action by the average temperature, and so enables them to take up the greatest quantity of food at a time when it is most wanted. Our experience justifies our strongly recommending inside horders made of sound calcareous loam, resting on a foot of clean drainage, through which water can pass away freely; but care must be taken that copious supplies of water are given at proper times, as Peaches when in full growth in such borders, and presenting as they do a large breadth of foliage to the influence of heat and light, rarely suffer from over-watering whilst failures can often be traced to insufficient supplies. In making horders the greatest mistake is heaping together enormous masses of rich materials, through which a few gross roots pass quickly, soon getting beyond control, and continuing to force up unwholesome food at a time when the trees should be at rest. To avoid this the horders should be made so limited that the roots can be kept within bounds, the materials under rather than over-rich, and manure should always be applied on the surface as a mulching.

*Succession Houses.*—Proceed with the usual routine, and keep the trees in health and vigour by the timely application of water to the roots and foliage, early ventilation, and good mulching. If red spider or scale appear, as they often do near the pipes, an insecticide applied to the leaves with a soft brush will speedily destroy the spider, and its application to the wood with a hard one will remove the scale, provided it is taken in hand before it reaches the foliage. The appearance of the first insect should be the signal for attack on the part of the cultivator, when the moderate use of insecticides would prevent injury. Allow a free growth of wood through the stoning process, and guard against retaining more shoots than can be tied to the trellis.

**CUCUMBERS.**—Where these are growing in houses and hot-water pits the plants should be syringed twice a day, so that every portion of the foliage may receive a thorough washing, which will be the means of keeping the plants free from the attacks of red spider and other troublesome insects. Plants growing in dung frames will not need syringing so often; a sprinkling at closing time will be sufficient on bright days, and none at all when the weather is dull. Give liberal and frequent waterings of liquid manure at a temperature of 75° to 80° to plants in full bearing, and avoid overcropping. Straight fruit being in request, and they certainly are finer-looking, they should be placed in glasses as soon as they have set, or three pieces of wood nailed together make a good substitute. No more fire heat should be used than is absolutely necessary, and with the reduction of fire heat moisture will need to be reduced correspondingly. Make another planting if necessary, so that the supply of fruit may exceed rather than prove unequal to the demand. Attend to the necessary stopping, thinning, and tying of the shoots, keeping up a succession of fruitful growths.

**STRAWBERRIES IN POTS.**—Under the best of management Strawberry forcing is a matter of difficulty at this season, especially where forcing has to be carried on in vineries, Peach houses, &c., where red spider is soon transmitted to the permanent plants if the Strawberries are not regularly syringed and kept well supplied with water at the roots, and in addition to cleanliness a proper supply of fruit is cause of some anxiety. Arrangements should be made so that there may be a succession of plants, and crops that are ripening may be retarded in various ways for several days in case an extra supply is required for particular occasions. The expedients are turning the fruits from the sun, shifting the plants to a north house, or removing the plants from under glass into an airy fruit room or cool shed after the fruits are fully ripe. Much can be done at this season in cold frames with judicious management. All plants that can be accommodated in cold or low-heated pits should have their flower spikes thinned out to the requisite number, and be plunged in coal ashes well up to the glass, leaving room for a circulation of air to play between



the glass and the leaves of the plants, and the forward plants from these structures can always be picked to take the places of those that are ripe and ripening. Liquid manure should be given at every alternate watering to plants swelling off their crops, but care must be taken not to give it too strong, and always tepid.

#### HARDY FRUIT GARDEN.

Trees planted last autumn should already be pushing roots freely into the rich soil of the stations; and if this early root-action can be induced before the swelling buds burst into growth, such growths will be all the more vigorous and sturdy. Due care and attention given now to such trees goes far to ensure a successful first year. But too often do we find newly planted trees making very little growth the first season, simply because precaution is not taken to protect the roots from the effects of drought, and to keep the trees securely in position. No doubt drought does much harm to trees exposed to its baneful influence in a hot dry summer, but it is also very mischievous at this season of the year. It would not be so if the instructions given again and again to mulch the trees when planted were followed. The value of the mulching is so obvious that we might reasonably expect ordinary attention would be given to it, yet it is not so. Repeatedly do we find newly planted trees without mulching, and we also find in such cases a want of intelligent appreciation of the causes of success and failure in fruit culture. No sympathy have we with such easy-going and careless practice; we are bound to go further than this, and to insist upon it that when the work is entrusted to a gardener it is clearly his duty to do it in the best way, and he ought not to undertake such work if he is incompetent. The fickleness of the weather in the first week or two of May is proverbial. A sharp frost on May day did much harm to the blossom of unprotected fruit trees; in some instances Cherry blossom was destroyed and Gooseberry leaves blackened by frost. Small pyramidal or espalier Cherries could easily have had protection, and a little dried fern or other litter shaken upon the Gooseberry hedges would have saved the crop. Continue to guard Peach and Nectarine trees carefully from exposure to cold wind in order to save the fruit crop and to prevent attacks of blight upon the foliage and stems of the new growth. Liberal applications of sewage or other liquid manure may now be given to Strawberries and hush fruit, our object being to assist a full development of the fruit, and this can only be done by beginning thus early with the sewage. Never suffer the household sewage to be wasted, but turn the whole of it to account to impart fertility to the soil. A systematic use of sewage in the fruit garden throughout the season of growth is highly advantageous to all kinds of fruit, and is much to be commended. By giving it to Strawberries now we promote a stout sturdy growth of foliage, large trusses of blossom, and plenty of fine fruit. If, however, we wait till the fruit is swelling before using the sewage it will be too late, for then we can only assist the growth of fruit, which cannot be really fine if the blossom was small and the stalks slender.

#### PLANT HOUSES.

*Aralias*.—Useful decorative species like *A. leptophylla* and *A. reticulata* are often grown too warm, and in consequence become too tall. Plants in this condition may be cut close back, the stem cut into lengths of about 2 inches, and inserted singly in small pots. The pots used should be filled with any moderately light sandy soil, a little sand being placed in the centre for the base of the cutting to rest upon. Give a good watering, and plunge the pots in brisk bottom heat in the propagating frame or under a handlight. In a very short time the uppermost eye will burst into growth, and roots will then quickly be formed. When the small pots are full of roots they may be transferred into 4 or 5-inch pots, and grown on in heat for a time until they are large enough for decorative purposes, when they should be hardened to greenhouse treatment. Cold draughts must not be allowed to strike upon the plants. In this position growth will be slow, and the plants will remain of a suitable size for a long time.

*Dracenas*.—Young stock raised from the root portion of the stem and placed singly into 3-inch pots two months ago, must now be transferred into others 2 and 3 inches larger. These should be grown on in brisk heat, carefully watered and shaded from strong sun. Young stock now in pans must be placed into 3-inch pots. If there is any deficiency of young stock of such forms as *D. rutilans* and *congesta*, stems should be cut up without delay, and if placed in brisk heat will not be long before they are ready for small pots. These varieties in their early stages grow much more quickly in heat than in the greenhouse. It is advisable to subject them to this treatment until they are established in 5-inch pots—a very suitable size, and then grow them in the greenhouse. The growth is slower and more sturdy in the greenhouse than in the stove. The whole of the plants required for winter and spring use must be pushed on, so that by autumn they are suitable for the purpose for which they are required. *D. gracilis*, one of the best for room decoration, will do from this date subjected to greenhouse treatment—that is, all plants that are large enough for decoration. By avoiding cold draughts and watering the plants carefully, they will remain in good condition for use the whole of the summer without becoming too large. Plants that have become too tall may have the tops cut off and re-rooted at once. The heads of this variety will root in brisk heat under a hand-glass without losing a single leaf. When well rooted place them into 5-inch pots, allow them to become established, then gradually harden them, and place them in the greenhouse. Young plants raised from side shoots are the best for table decoration, because their foliage is much narrower than is the case with strong plants. These if not required for

this purpose may be grown on strongly in the stove until they have well-developed heads, when they may be taken off and rooted. Plants of *D. Goldiana* that have been raised from side shoots have always a number of small leaves at the base, which detracts from the beauty of this plant when used singly in vases. The heads will root as freely as those of *D. gracilis* if cut off where the wood is soft, plunged in bottom heat, covered with a handglass, and kept shaded from the sun where a brisk temperature can be maintained. Large-growing varieties, such as *D. Cheloni*, *D. Baptisti*, and others that have been raised from heads this spring and are now in 7 and 8-inch pots should, if fine specimens are required, be transferred without further delay into 10 and 12-inch pots, in which they will develop into very large plants either for furnishing the stove or various positions in rooms where they can be surrounded with Ferns and other plants of a dwarf nature to form small groups.

*Gardenias*.—Young plants rooted last August and now well established in 5-inch, may be shifted into 7-inch pots. The shoots may be tied out towards the rim of the pots, and in a short time growths will spring freely from the centre. These must be pinched from time to time to prevent the plants becoming straggling. If grown on in heat and moisture they will develop rapidly, and by autumn be 2 feet or more in diameter. For spring flowering, young plants raised every autumn are decidedly better than the retention of old ones. For autumn and winter flowers the best of the old plants should be selected that have their pots full of roots, so that they will only make a dwarf sturdy growth, which can be brought to a standstill early by cool treatment. Where it is necessary to retain the old stock for spring flowering they should be cut close back after the flowers are over, and repotted when they have broken into growth.

*Tabernaemontanas*.—As these plants cease flowering they should be well cut back, or in a short time they soon become bare at the base. If liberally pruned annually they will be well furnished with foliage. When they have commenced growth after pruning they may be turned out of their pots and the old soil shaken from the roots. They can be placed in the same or smaller pots, and if kept in brisk moist heat and shaded from the sun will soon be well established again.

*Aschynanthus*.—These are beautiful plants when well grown, and are much more effective in baskets than when their cultivation is attempted in pots. If cuttings are now rooted they may be placed round the sides of baskets in a compost of fibry peat and loam in equal proportions with charcoal and sand freely intermixed. The cuttings, if practicable, should be rooted singly in small pots, so that they can be placed in the baskets without the risk of checking them. They will then grow away freely, and their shoots will hang gracefully from the basket. Fresh baskets should be made up annually, so that a few of the oldest can be destroyed, for in time the soil becomes exhausted and they then fail to do satisfactorily. The small but free-growing *Lobbianus* is a splendid basket plant, and from this season of the year is most attractive with its dark chocolate and scarlet flowers. All the varieties enumerated in catalogues are well worth growth, but if two only are required select the one named and grandiflorus.

## THE BEE-KEEPER.

### NOTES ON BEES.

#### TRANSFERRING STOCKS.

THERE are few bee-keepers nowadays who are content to begin with the common straw skep as they sneeringly term it; the teaching of the day is to a great extent making men believe that it is easy to manage an apiary, and that no particular experience is required in this industry in order to ensure success. To commence with a skep would indeed be a degradation. It is, perhaps, this false idea of the relative merits of the straw removeable frame hive which makes beginners ask so many questions on the subject of transferring stocks from one hive to another. A bar-frame hive, too, looks so neat and compact, and, in comparison with the homely skep, seems quite a palace, so they are all anxiety to change the abode of the bees, sometimes quite irrespective of the value of the hives. Transferring was a few years ago much more prevalent than is now the case, but the evil results induced by so essentially false a practice have effectually prevented its adoption except in the case of men who, from an interested motive or in the pride of new learnt power, venture to remove the combs and bees from a skep and place them in a bar hive in the spring. It is, perhaps, unnecessary to say that there are some few men who can perform this operation with success, but for the generality of bee-keepers the operation is one often attended by loss which cannot be at all compensated for by any benefit derived from the change of hive, even when the removal is managed in the most successful manner.



possible. It will, however, be advantageous to say a few words upon the subject, and to consider the best way to treat a stock in a common skep with which the majority of bee-keepers are launched into apiculture.

A man who begins his bee-keeping life with a good knowledge of bees and their practical management gained from careful reading of standard works on the subject, which are now not few in number, has indeed a great advantage over another who has to learn by experience what he would in a far shorter time have picked up from a book written by a practical man, who writes solely for the benefit of bee-keepers and is uninfluenced by any other consideration which may induce him to recommend appliances which have not been really proved to be of value and efficacy. Let every man be content to leave his bees in the skep, at any rate until a time has arrived when he can transfer them with absolute safety to the hive which he has provided as he thinks for their better accommodation. This time is twenty-one days after swarming, when the combs will contain no worker eggs or brood, although there may be some few drones still unhatched, but they, however, may be sacrificed, if necessary, without remorse, and even with advantage. The man who allows his bees to be transferred in spring from a straw skep to a bar-frame hive has yet to learn from bitter experience that it is safer to travel slowly yet safely than to hurry unwisely over roads of which he knows nothing, and on which he will be sure to find many obstacles to bar his—as he hoped—rapid progress, and to allow his rival who took the slower but safer road to pass him and gain the goal they both strive in different ways to attain.

#### THE POSITION OF THE APIARY.

One of the most troublesome details in connection with the commencement of bee-keeping is the choice of a position for the apiary. It is difficult because so many things have to be taken into careful consideration, and for the fact that it is most difficult, and at certain times of the year almost impossible, to move a stock of bees a less distance than two miles without the certainty of losing many bees, which, not marking their new situation, fly back to the old position and, becoming exhausted, die there. There are, no doubt, some positions more favourable than others, but it is essential that there be no likelihood of being compelled to move the apiary from the spot on which it is first located. There is no position that seems more suitable than one having a south-east aspect for the bees; these obtain the early rays of the sun, which are so useful as an incitement to early labours, and yet the cutting east wind is to some extent kept out of the hive. A hedge or wall at the back of the hives is also another very useful adjunct, and should in every case be obtained if possible; and if no wall or hedge is to be had it is well to erect either some temporary defence against the northern winds, or to plant trees which will year by year afford a more complete and perfect shelter. In front of the hives no trees or bushes should be allowed to grow, and no herbage to rise higher than the floorboard, for by branches of trees and bushes many bees are in high winds dashed to the ground and are unable to rise again. If, then, the hedge behind the clear space in front and a south-easterly aspect can be had, an almost perfect situation is formed for the apiary; but it is not by any means necessary to insist upon having any particular location, as even in the very worst positions the bees will so far overcome their unfavourable circumstances as to make perhaps but little real difference perceivable.

#### RACES OF BEES.

There are, again, few bee-keepers who are able to withstand the temptation to invest in some new variety of bee which will work wonders and astonish the old-fashioned bee-keepers who retain the blacks, which are now as a matter of fact rapidly becoming extinct, owing to the number of foreign varieties which are being introduced into apiaries in all parts of the kingdom. It is no doubt very beneficial for bee-keepers who desire to experiment to try many varieties of

bees and to give their experience to the world, but for a practical man who desires to make money by his bees it is far from wise to import a foreign race until he is perfectly satisfied that he will get something superior to what he possessed before. The foreign varieties are often better-looking than the native or the crossed varieties, but good looks are not what we want at all. We want extra work, more honey at less expenditure of time and money, and any bee which will give us this result will be warmly welcomed. The Ligurian bee is supposed to have these most desirable qualities, and there are other varieties of which the "Lanarkshire Bee-keeper," than whom there is no safer guide or greater authority on bees, has given some good accounts, but at present I see nothing in any variety so far superior to what we already possess in the common bee to enable me with confidence to recommend bee-keepers to take it into their apiaries. The common variety does so well that it will be difficult for any other variety to eclipse it, although it is quite possible that a careful cross between some two varieties may give a bee superior to any one of the pure races; but in all crosses there seems to be one great disadvantage in the increased tendency to use their stings, which seems to be developed in the progeny of hybrid queens. It is, however, necessary to say a few words on the other side, for I quite agree with a passage in some bee book which complains that a fair trial is not given to the foreign bee in many apiaries. Great expectations are raised, but the new queen is imported, perhaps to fill the place of a queen deceased in a poor colony, and is expected to restore to prosperity a hive which was worthless from the commencement. Another great fault in connection with foreign bees is that many bee-keepers divide them so unmercifully that the wonder is, not they do not collect a large surplus of honey, but that they contrive to exist at all. Disease does indeed often ensue, and then the race is condemned as worthless. Fair trial must be given to all, and until such trial has been made no condemnation can be fairly uttered. If the Ligurian bee or the Syrian bee can surpass the common bee in the hands of an ordinary bee-master, and has no defect which will depreciate this valuable characteristic, then practical men will readily adopt the change, and those who introduced the variety at expense and no doubt some loss to themselves will have earned the thanks of all bee-keepers.—FELIX.

#### THE SEASON AND THE BEES.

WINTER still lingers with us, and on the last day of April the thermometer stood at 25°, on the day before snow fell for some time. There has not been more than six days free from frost this year, and on three days only have the bees carried natural pollen briskly. Monday, April 26th, was a fine day with a temperature of 65°. On that day five miles from my home I saw wreaths of snow and Crocuses in full bloom.

Vegetation as well as bees are as a rule fully a month later than the average, but at the last a good change has favoured agriculturists and gardeners, and although rather late if heat comes plants will grow fast. Bees that have been well provided with stores and otherwise well cared for at the end of the season are well advanced, it is those only that have been neglected in some shape or other that are behind. My own stocks are mostly in an advanced state, the crossed Cyprians again taking the lead, but both pure and crossed Carniolians as well as crossed Syrians are not far behind. In fact, several nuclei of crossed Carniolians which occupied but one comb beginning of August, and having their hive extended to twelve large frames, stood so all winter and spring, are making more rapid progress in proportion to the number of bees than hives that had a full complement of bees at the end of the season. How is this? Simply because I provided the bees with plenty of honey and pollen, the industrious little insects did their best, and by molesting them no further I did the next best. I have often heard of the evil of pollen-bound hives which occur only when a hive is queenless during favourable weather for collecting pollen, but singular to say I never saw nor knew a hive suffer from being pollen-bound, if at the proper season—viz., in autumn. On the other hand, such hives with me were, as a rule, the best by spring. In every hive that I possess I can recognise bees that were working in July last year. This is by no means uncommon. The only thing uncommon about it is many bee-keepers fail to preserve the adult



bees by the strain they put on them through untimely and stimulative feeding and other manipulations, thereby wearing out and killing their bees prematurely, attributing this to the natural short life of the bees, and not to their injudiciousness.

The proper wintering and preserving of bees from July till May is still to many bee-keepers a mystery—a puzzle difficult to solve, which they seek to find out by employing the very opposite means towards a successful issue. There is not a hive of my own that has suffered from the cold and protracted season, which we hope is nearly closed, unless the pure Syrians, but these bees were not located in deep hives as has been the case with a Carniolian hive standing next to the Syrian one. This is the hive that I have alluded to before, and has attracted my attention during the whole season. It was a swarm in July. It made weight rapid, and a few pounds of sugar at the end of the month was all the attention it had, if I except the re-arranging of its covering on the top of frames. During the month of October it made a desperate attack on some hives to rob them, which bees with an aged queen are more liable to do than are those having a young one. After that they clustered up, and during the mild weather in December when other hives were flying, and even working, not a bee of these Carniolians attempted to fly. Neither did they on the 7th February, when others did so a little, and even after the 27th and 28th March when most others took an airing they stirred but little. Not more than a hundred bees flew out until the 22nd and 25th April, when they had a thorough airing and worked well. Many young bees played out at same time, and notwithstanding the six months confinement the dead bees did not exceed a dozen, and there was not a speck of excreta to be seen, neither inside nor outside the hive. Neither was there a single thing to be seen amongst the debris on false floor suggestive of dry excreta, as some writers will have us believe.

The successful wintering of bees consists in having a deep hive, and airy, but free from draught, well covered above frames, and kept free from external damp. With a hive constructed as above, and having a ventilating floor and sufficient bees, the sun's glare does not affect them during winter; the perspiration passes either upwards through the insensible ventilated crown, or falls through the ventilating floor. The damp atmosphere that must necessarily enter the hive is speedily heated, and the whole moisture is carried away by the above agents, while the bees are not affected by damp from any cause whatever. When bees are kept in such a comfortable state as this they remain quiet, and in that peculiar state of semi-torpor so suitable for preserving animal life during cold weather, feeding only at suitable times, and seemingly when full or satisfied the contents of the stomach are wholly consumed with little or no refuse to pass off as excreta, but is spent entirely to keep up the heat, the refuse passing off in carbonic acid gas and water through perspiration. I have not the slightest hesitation in saying that the successful wintering of this and my other hives is due entirely to the management I have laid down in these columns, and is what every bee-keeper should aim at.

Queen-rearing will be our first work in the apiary, and to all appearance three weeks hence we will be able to begin. I shall breed first from pure Carniolians; and in order to be in time, if the hives selected are not the most forward, I will exchange combs with those further advanced for some from my selected queen-raisers not so far advanced. By this means I shall have queens ready to introduce to others when they swarm. The remainder I will put in hives holding four nuclei, and nurse these on to be in readiness at any time a queen is wanted. By pursuing this course, and keeping up the strength of the apiary by constant breeding, all my hives will be in full strength during summer, and extra strong for the Heather. As strong hives are those only that collect large quantities at the moors and pay the expenses of taking them there I will take up this subject again, but advise bee-keepers to push forward one hive at least to be in readiness for swarming early and queen-rearing.—A LANARKSHIRE BEE-KEEPER.



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We

request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**TO CORRESPONDENTS.**—We desire to assure those of our correspondents whose letters and communications are not promptly inserted that they are not the less appreciated on that account. Our pages are practically filled several days prior to publication, and letters arriving on Wednesday morning, except by special arrangement, are invariably too late for insertion. The delay in the publication of some of these is not of material importance, but reports of meetings and shows held a week previously lose much or all of their value if not received in time to appear in the current issue.

**Books (Warwick Square).**—The best cheap elementary work on botany is the primer by Sir J. D. Hooker, issued as one of a series by Macmillan. The system of arrangement adopted in Lindley's "Vegetable Kingdom" is a good one, but modifications of Decandolle's and Jussieu's systems are also adopted by some botanists.

**Trough on Flue (E. M. H. C.).**—The trough on the flue beneath the box without a bottom ought not to be kept filled with water, as the soil or drainage will be in contact with it and absorb the water, and so become sodden and sour. If the box had a bottom, then you might have kept the trough filled with water or liquid manure to supply moisture to the atmosphere.

**Cesspool (F. J.).**—Throw plenty of gypsum (plaster of Paris or sulphate of lime) into the tank. The liquid must not be used thick, like cream, and leave a scum on the surface, but must be diluted when in that condition. We intended appending this to the last reply we gave on another subject, but omitted to do so. If both the questions had been in the same letter they would have been attended to.

**Show Auriculas (H. E. M.).**—It is not customary for growers to raise seed for sale of choice named varieties, as the ripening of much seed weakens the plants. We know of no other way of establishing a collection of the best named stage varieties than by purchasing plants from florists. Some Show varieties are faithfully represented on page 315.

**Cinerarias (E. G.).**—The flowers sent represent a very good strain, and, judging by the description of your plants, they must have been admirably grown. Though the varieties are of full average excellence as obtained from purchased seed, not one of them would be rewarded with a certificate by the Floral Committee of the Royal Horticultural Society. The florets do not overlap sufficiently nor possess the requisite substance. The Auriculas are types of ordinary border varieties.

**Tank Leaking (W. M.).**—We are glad to have your experience, which solves the problem that puzzled you and the architect; undoubtedly the floors of tanks must be quite firm to avoid sinking, and the builder's idea to have them convex is good, but they must be firm all the same. It is scarcely within our province to settle disputed points between architects, builders, or gardeners on general matters not pertaining to horticulture. If you fill the space with dry powdered charcoal and limewash the outer roof—indeed, being wood, it should be covered in the same way that "Lanarkshire Bee-keeper" covers his hive (see page 262)—you will secure a more equable temperature in the larder than by either of the plans to which you allude. We do not desire the name of the architect. These gentlemen differ in opinion occasionally, the same as doctors do—and gardeners.

**Covering a Lawn Tennis Ground with Cinders (Merchant).**—For covering the ground you should have at least 3 inches thickness of the red cinders, the remainder of the foot thickness should be of the black cinders, with clinkers, &c., and the whole rammed as firmly as possible, so as to prevent sinking or settling after the work is done. The cinders will not be of any use for lawn tennis as the frost will disturb them. The surface should be cemented, the top 3 inches being formed of cement concrete in the proportion of one part Portland cement to two of the red cinders, brought to the consistency of mortar with water. The surface should be smooth, and have a slight incline outward every way so as to keep it clear of water, but the fall must not be much or it will spoil the ground for playing. About an inch in 12 feet is sufficient.

**Crowded Vines (Constant Reader).**—It is not necessary to publish your letter. When Vines are what is known as "long pruned," though they often show finer bunches than by close spurring, evil is certain to follow if the growths are not thinned by disbudding. Every lateral must have space for the leaves to develop fully without being crushed and shaded by others, and the earlier this disbudding or thinning is done the better. "Long spurs" when cut back are followed by fresh growths if the Vines are strong; but if weak the growths, if produced, are weak also. If the laterals are anything less than a foot apart cut every alternate one back to the main rod, and whether fresh growths issue or not the Vines will be improved by the thinning. If they do not bear well on the close-spur system, train up some young rods under the fullest exposure to light possible. When the roots of Vines are matted near the surface of the border and well supported, the laterals also trained thinly, Vines usually bear well when closely pruned. If the roots are far beneath the surface and the Vines make long-jointed wood, close pruning often results in small bunches, or none at all if the Vines are weak.

**Potting Azaleas (E. D. Wicklow).**—It is only under very exceptional circumstances that the old balls of soil should be broken and reduced. The soil in which they should be potted must consist of peat and a liberal dash



of coarse sand. When potting them, which should be done just as they are starting into growth, the soil used should be pressed firmly into the pots. Care must be taken to do this, for if the new soil is not made slightly firmer than that of the old ball, water will pass through the new soil and leave the old ball dry, which would soon prove fatal to the plants. They should be most carefully watered at their roots, and never allowed to become dry in any stage of growth. The foliage must be liberally syringed during the greater part of the year in order to keep it free from thrips, an insect very troublesome to these plants. After the plants have flowered they should be encouraged to make a good growth by keeping the house in which they are growing close and moist, the plants being well syringed in the morning and again in the afternoon, also shaded from bright sun. After the growth is completed they should be hardened, and may be stood outside until September, when they should be housed. Before placing them out the flower buds will be formed. While outside be careful that the sun does not strike direct upon the pots, or the roots, which are very fine, will be destroyed. Portions of old mats secured on the sunny side of the pots will protect the roots from injury by the sun. Camellias require much the same treatment, but removing loose or sour soil from the roots, and using half loam or more, not containing lime, and a little crushed charcoal. Avoid overpotting, and drain effectively, so that copious supplies of water can be given without rendering the soil sour.

**Roses in Pots (D.).**—Mr. Ladds, to whom you refer, grows all his Tea Roses in large pots, but many other growers have them planted out. The latter plan gives the largest blooms, but those in pots are more useful and admit of the house being put to other purposes when the Roses are outside. The only way to get large blooms is by good feeding, and for this to be of any avail the plants must have active roots; therefore the plants must be established in a good soil, and with plenty of roots there is no difficulty in increasing the size of the blooms by rich surface dressings and the application of liquid manure. All the artificial manures are good. A little of any of them sprinkled on the surface of the pots and washed in will make a great deal of difference in the growth and size of the blooms. Bonemeal is a capital dressing for Roses in pots, and Beeson's, Clay's, Jensen's, &c., are capital fertilisers. A surface dressing of manure, to which a quart of bonemeal and a quart of soot have been added and intermixed with half a bushel of the manure is first rate, applied as a surface dressing about an inch thick, and renewed from time to time as it becomes reduced or wastes away. Liquid manure should be given once or twice a week, than which there is none better than cow dung put in a sack or coarse bag, and at the rate of a peck to 30 gallons of water. If no surface dressing is used containing soot, then add soot also in a bag at the rate of a peck to 30 gallons of water or 60 gallons for the peck each of cow dung and soot. No pruning is necessary, only any weak worn-out wood is cut out to encourage young and strong growth, on which the finest flowers are produced.

**Substitute for Wood Ashes in Compost for Chrysanthemums (J. L. J.).**—The potash of commerce will hardly do for mixing with the soil for Chrysanthemums. It would be much better to apply the potash as surface-dressing and in combination with other manurial substances, as potash is not all that is required to ensure a good clean growth, and there is danger of disaster from too much potash; indeed, all salts require to be given in small supplies, and not too frequently. Urine contains potash largely, and we find that the drainings of stables, diluted with six times its bulk of clear water, sufficiently powerful for Chrysanthemums if given twice a week. Amies', Clay's, Beeson's, Jensen's, and other advertised manures contain potash. You may use any of these with safety, and as we have proved with benefit for mixing with the soil at potting at the rate of a quart to a bushel of compost, and if you use calcined oyster shells or crushed bones, or drainage an inch thick over the two or three large pieces of crocks at the last potting, nothing more is wanted in the soil, as the chief thing is to get a good rooting medium and feed with liquid or rich surface dressings. A teaspoonful of sulphate of ammonia to three gallons of water is the best liquid we have used, it being applied once a week; the other waterings being of animal manure and soot, one peck each to sixty or seventy gallons of water, and the drainings of the stables, mostly urine, diluted with six times the quantity of water. The plants, therefore, were watered every other day with stimulating food—viz., ammonia water, cow manure, soot, and stable tank water, and on other days with water only. Surface-dressings are excellent, but they must be used judiciously and not frequently, or at intervals of ten days to a fortnight; less frequently in moist and more frequently in dry weather. If highly fed in wet weather the plants attain a luxuriance which is not sustained in dry weather, and the flowering is considerably affected. The thing is to get a sturdy growth thoroughly solidified or ripened, and then fine blooms may be relied upon. As a surface dressing, six parts superphosphate of lime and one part each of sulphate of ammonia and potash of commerce is likely to form an excellent stimulant, but we have not tried it sufficiently to warrant our confidently advising its use. It should be used in moderation, about a teaspoonful on the surface of a 9-inch pot, and the surface scratched a little with a label after its application, and then washed well in with a rose watering-pot.

**Names of Fruits.**—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. (Bishop).—1, New Bess Pool; 2, Winter Greening; 3, Not known.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (C. L.).—*Oxalis rosea*. (H. Coombs).—*Aspidistra lurida variegata*. (W. C., Peebles).—It is a stunted specimen of *Abies nobilis*.

#### COVENT GARDEN MARKET.—MAY 5TH.

Good supplies of Grapes now reaching us at reduced prices. Strawberries inclined to advance.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	1 sieve	2 0 to 3 6	Peaches .. .. .	per doz.	6 0 to 20 0
" Canadian ..	barrel	12 0 20 0	Pears, kitchen ..	dozen	0 0 0 0
Cobs, Kent ..	per 100 lbs.	27 6 30 0	" dessert .. ..	dozen	0 0 0 0
Figs .. .. .	dozen	0 0 0 0	Pine Apples English ..	lb.	1 0 1 6
Grapes, New ..	.. lb.	2 6 6 0	Plums .. .. .	1 sieve	0 0 0 0
Lemons .. ..	.. case	2 6 4 0	St. Michael Pines ..	each	4 0 6 0
Melon .. .. .	.. each	0 0 0 0	Strawberries .. ..	per lb.	3 0 8 0
Oranges .. ..	.. 100	4 0 6 0			

#### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	dozen	1 0 to 0 0	Lettuce .. .. .	dozen	1 0 to 1 6
Asparagus .. ..	bundle	2 0 8 0	Mushrooms .. ..	punnet	0 6 1 0
Beans, Kidney ..	.. lb.	2 0 2 6	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red .. ..	dozen	1 0 2 0	Onions .. .. .	hunch	0 3 0 0
Broccoli .. ..	hunch	0 0 0 0	Parsley .. .. .	dozen bunches	2 0 3 0
Brussels Sprouts ..	1 sieve	0 0 0 0	Parsnips .. .. .	dozen	1 0 2 0
Cabbage .. .. .	dozen	3 0 4 0	Potatoes .. .. .	.. cwt.	4 0 5 0
Capsicums .. ..	100	1 6 2 0	" Kidney .. ..	.. cwt.	4 0 5 0
Carrots .. .. .	bunch	0 3 0 4	Rhubarb .. .. .	bundle	0 2 0 0
Cauliflowers .. ..	dozen	2 0 3 0	Salsafy .. .. .	.. bundle	1 0 0 6
Celery .. .. .	bundle	1 6 2 0	Scorzoner .. ..	.. bundle	1 6 0 0
Coleworts .. ..	doz. bunches	2 0 4 0	Seakale .. .. .	per basket	2 0 3 6
Cucumbers .. ..	.. each	0 3 0 8	Shallots .. .. .	.. lb.	0 3 0 0
Endive .. .. .	dozen	1 0 2 0	Spinach .. .. .	.. bushel	8 0 4 0
Herbs .. .. .	bunch	0 2 0 0	Tomatoes .. ..	.. lb.	1 0 3 0
Leeks .. .. .	bunch	0 3 0 4	Turnips .. .. .	bunch	0 4 0 0

#### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0 to 18 0	Ficus elastica ..	each	1 6 to 7 0
Arbor vitae (golden)	dozen	0 0 0 0	Ferns, in variety ..	dozen	4 0 18 0
" (common) ..	dozen	6 0 12 0	Foliage Plants, var.	each	2 0 10 0
Arum Lilies .. ..	dozen	9 0 18 0	Genistas .. .. .	dozen	6 0 12 0
Azaleas .. .. .	dozen	24 0 42 0	Hyacinths .. ..	dozen	0 0 0 0
Begonias .. .. .	dozen	0 0 0 0	Lilies of the Valley, in		
Bouvardia .. ..	dozen	0 0 0 0	pots, per doz.	12	0 18 0
Cineraria .. ..	dozen	6 0 10 0	Marguerite Daisy ..	dozen	8 0 12 0
Cyclamen .. ..	dozen	12 0 24 0	Myrtles .. .. .	dozen	6 0 12 0
Cyperus .. .. .	dozen	4 0 12 0	Palms, in var. ..	each	2 6 21 0
Dracena terminalis,	dozen	30 0 60 0	Pelargoniums, scarlet,	doz.	4 0 8 0
" viridis .. ..	dozen	12 0 24 0	Primulas, single,	dozen	0 0 0 0
Erica, various ..	dozen	12 0 24 0	Solanum .. .. .	dozen	0 0 0 0
Euonymus, in var.	dozen	6 0 18 0	Spiraea .. .. .	dozen	6 0 12 0
Evergreens, in var.	dozen	6 0 24 0	Tulips .. .. .	12 pots	0 0 0 0

#### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. ..	12 bunches	2 0 to 4 0	Marguerites .. ..	12 bunches	3 0 to 6 0
Anemone .. ..	doz. bunches	2 0 6 0	Mignonette .. ..	12 bunches	3 0 6 0
Arum Lilies .. ..	12 blooms	4 0 6 0	Narcissus, various 12	bunches	2 0 6 0
Azalea .. .. .	12 sprays	0 6 1 0	Pelargoniums, per 12	trusses	0 9 1 0
Bouvardias .. ..	per bunch	1 0 1 6	" scarlet, 12 trusses		0 4 0 8
Camellias .. ..	12 blooms	1 6 4 0	Poinsettia .. ..	12 blooms	0 0 0 0
Carnations .. ..	12 blooms	1 0 8 0	Roses (indoor), per	dozen	1 0 3 0
Chrysanthemums 12	blooms	0 0 0 0	" Tea .. .. .	dozen	0 9 2 0
" .. .. .	12 bunches	0 0 0 0	" red .. .. .	dozen	2 0 4 0
Cowslips .. ..	doz. bunches	1 0 2 0	Primroses, Yellow,	dozen	
Cyclamen .. ..	doz. blooms	0 4 0 6	hunches .. .. .		0 6 0 9
Daffodils .. ..	12 bunches	1 6 6 0	Primroses, Double White,		
Epiphyllum .. ..	doz. blooms	0 0 0 0	dozen bunches ..		1 0 2 0
Encharis .. ..	per dozen	4 0 8 0	Spiraea .. .. .	12 sprays	0 6 1 0
Gardenias .. ..	12 blooms	2 0 6 0	Tropaeolum .. ..	12 bunches	2 0 3 0
Hellebore .. ..	doz. blooms	0 0 0 0	Tuberose .. .. .	12 blooms	1 6 2 0
Hyacinths, Roman, 12	sprays	0 6 1 0	Tulips .. .. .	dozen blooms	0 4 0 6
" Dutch .. ..	per box	1 0 4 0	Violets .. .. .	12 bunches	0 0 0 0
Lapageria, white, 12	blooms	0 0 0 0	" Czar, Fr. ..	hunch	0 0 0 0
Lapageria, red ..	12 blooms	1 0 2 0	" Parme, French, per		
Lilium longiflorum, 12	hims.	6 0 9 0	bunch .. .. .		3 0 5 0
Lily of the Valley, 12	sprays	0 9 1 0	Wallflower .. ..	12 bunches	2 0 4 0



#### THE FUTURE OF FARMING.

WHEN the full value comes to be known generally of the constituents of artificial manure, and farmers are able to distinguish between nitrogenous, phosphatic, alkaline and calcareous manures, and the relative value of each fertiliser and its particular use as plant food is known, the somewhat vague term of artificial will probably give place to the more appropriate appellation of chemical manures. The mere use of manures has been termed "Adding artificially to the fertility of the land." Why artificially? If we assist Nature in the right way she contributes materially to the fertility of the soil, but in order to obtain all that is possible from it we must make good each element of fertility in which it is deficient, and to do this as economically as possible we must know what was taken from it by the last crop, what will be required by the next one. In the acquisition of such knowledge we need not at the outset trouble ourselves much about



geological formation, but rather strive earnestly to ascertain the chemical composition of the plants we have to cultivate, and see that sufficient of each fertiliser required by a given crop is present in the soil for it, a little watchfulness and care will then soon clear the way of difficulties. We refer to this important work in its bearing upon the future of farming thus in general rather than particular terms, because for practical purposes it is unwise to carry scientific nicety to a ridiculous extreme. Whatever rules are framed for the guidance of farmers generally must be elastic to be generally applicable to practice.

Instead of placing blind reliance upon stringent rules, let there be intelligent individual effort to acquire sufficient knowledge for confident independent action, according as local circumstances may require. To be really successful a farmer must look closely into cause and effect. Dare we venture to assert that the ordinary farmer does so? On the day of writing this article we called the attention of the home farm bailiff to the general flourishing appearance of a field of winter Oats. He, without any hesitation, said it was owing to sheep-folding and farmyard manure, yet ample evidence that he was wrong lay clearly before his eyes, if only he could have seen it.

The Oats had a half dressing of home-mixed artificial manure in the autumn, the other half dressing was given early this spring. It was sown broadcast by hand, and like most hand work it lacked the precision and nicety of machine work. In several places were strips of Oats which had been missed by the manure sower, and the poverty of growth was all the more remarkable from the vigour of that which had the full benefit of the spring dressing. A noteworthy fact of this field of winter Oats—a deep loam in mid-Suffolk—is that we have used a precisely similar prescription of home-mixed manure to that which we used in Sussex for a poor thin silicious soil on the Hastings sand formation, and apparently the results will prove equally satisfactory. Eventually we hope they will surpass them, but it must not be forgotten that deep loam may be lamentably poverty stricken, and the mention of this brings us to another important consideration for the future of farming, which is soil management.

A wide field opens before us here, but our remarks must be confined to a few leading general points. It may be laid down as a fundamental rule that drainage is necessary for all soil upon clay, marl, or mixtures of a tenacious character. We must relieve the soil of superfluous surface water, we must also prevent water contained in the subsoil from rising to the surface by capillary attraction. The mention of such self-evident facts is like the repetition of an oft told tale, and yet how necessary is it that we should never miss an opportunity of telling how waterlogged soil is always—aye, even in summer—at such a low temperature that no crop can really thrive in it, no matter how heavily it is manured. We have done much good work in draining wet land during the past winter, and we hope to tell of favourable results arising from it in due course.

Mechanical division of the soil is another cultural point to which full attention must be given in the future. Farmers in a gravel or flint district have no trouble in this matter, but there are very few stones to be found in soil resting on sandstone, and it is liable to settle down into so compact a mass that air and moisture enter it very slowly. Dressings of burnt earth, coal ashes, and lime afford an effectual remedy for such a serious want of division in the soil. When this is set right, cleanliness is the next point to which close attention must be given. Soil infested with foul weeds is unfit for the growth of farm crops, and it must be made clean before we can possibly avoid waste in cultivation. Advisedly do we place cleanliness before fertility. We cannot afford to waste manure upon the culture of weeds. Carelessness and slovenly practice generally has caused couch grass and Charlock to spread far and wide over the land. Couch grass is an insidious enemy of which little is seen till we turn up the soil, but Charlock plants its yellow blossom in our eyes so that

we have no excuse for allowing the first few plants of it to run to seed among the crops in which they first appear on the farm. Every yellow-flowered rogue should be destroyed while yet they may be counted by the hundred, but if we let it alone for a season or two it spreads with such rapidity that it is not easily got rid of.

(To be continued.)

#### WORK ON THE HOME FARM.

Time which could only be spared with difficulty has had to be given to chaff-cutting for the flock. Rye, Rye Grass, and Meadow Grass all grows fast now, but the sheep still have chaff in the folds with other mixed dry food. Before all things the ewes must be kept in healthy condition if we would have the lambs answer, and it is by no means easy to manage this now, for fast-growing lambs, however well fed, make heavy demands upon the ewes, evidence of which is seen in every one of the dams, but especially the weakly ones. On the day of writing this note we sent our first batch of fat lambs to market; some were sold for 32s. apiece, others at 27s., and others at 25s. Such prices afford a handsome margin of profit upon outlay for lamb food and labour, and we certainly could never sell them to greater advantage, however long we might keep them. In proof of this we may add that at the same market we had forty fat hoggets sold at prices ranging from 47s. 6d. to 50s. 6d. apiece. They were about a year older than the lambs, and had consumed much corn and cake last winter. No doubt much good was done to the land upon which they were folded, but it is clearly worth while to have a few score fat lambs early in market. One more lesson gained at market to-day among the sheep. Among the fat hoggets were a considerable number of prime pure-bred Suffolk hoggets, black faced, with fine long thick frames, and in high condition. Pen after pen of five hoggets was sold at prices ranging from £15 to £17 10s. per pen of five, or at an average price of 65s. apiece. Of course they had been well fed, but then it was equally clear how admirably they had ripened for the butcher. Again we say, if you do keep sheep or cattle keep the best, best in the light of profit and loss, for that is the only safe test, and is that to which all our practice and its results should be subject. We do not care at all about pedigree stock, but we certainly do care for that which can be turned into profit quickly.

Dairy cows are let out on meadow grass in the day now, but they will be kept in at night for another month. Store cattle will not leave the yards till the pastures are forward in growth. We have no faith in turning out beasts upon half bare pastures, for the result is never satisfactory. What is known as store condition among cattle never did point to speedy profit at the best, and now less so than ever. If we do have cattle upon the farm our only safe course is to keep them from falling into low condition at any time, but we must not go to the other extreme, and force them so fast as to run a risk of losses from quarter evil.

**A DAIRY SCHOLARSHIP.**—A sum of £20 is offered by the British Dairy Farmers' Association to provide a scholarship, to be competed for by dairy farmers or persons intending to start upon the business of dairy farming or dairying. Candidates must be not less than eighteen years of age. They will be subjected to a written and a *visd voce* examination in butter-making at the Society's rooms, 191, Fleet Street, London, on Thursday, May 13th, and a practical examination at Mr. Tisdall's dairy, Kensington. The successful candidate will be required to devote at least two months to the acquisition of knowledge of butter-making in Normandy, and to keep a journal of his experience during the whole period of his scholarship, sending a copy of it weekly to the British Dairy Farmers' Association.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain
1886.  April—May.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature			
			Dry.	Wet.			Max.	Min.	In sun.	On grass		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday .....	25	30.149	54.1	48.6	N.E.	48.2	62.3	44.1	103.4	38.3	—	
Monday .....	26	30.117	52.6	47.7	S.E.	48.6	61.5	40.3	105.3	34.3	—	
Tuesday .....	27	29.918	50.1	47.3	N.E.	49.2	60.2	41.3	108.7	35.8	0.077	
Wednesday ..	28	29.636	49.9	49.4	E.	50.0	66.7	44.8	94.6	38.2	0.190	
Thursday .....	29	29.899	39.9	38.6	N.E.	4	51.7	36.3	93.9	33.4	—	
Friday .....	30	30.153	43.7	38.8	N.E.	47.4	55.5	34.0	102.4	29.4	—	
Saturday ....	1	30.251	47.8	41.1	E.	47.4	62.2	31.6	105.8	23.7	—	
		30.018	43.3	44.5		43.6	61.4	38.9	102.0	33.3	0.237	

#### REMARKS.

25th.—Almost cloudless day and night.  
 26th.—Another cloudless day and night.  
 27th.—Again almost cloudless.  
 28th.—Wet early, with sharp hail shower at 4.15 A.M., but a fine day on the whole, with some sunshine and occasional showers.  
 29th.—Wet early, dull morning, fine afternoon and evening.  
 30th.—A glorious spring day.  
 1st.—An exceptionally beautiful day.  
 As a whole a week of exceptionally bright clear weather, but with rather treacherous E. or N.E. wind. Temperature rather lower than that of the preceding week, and a little below the average.—G. J. SIMONS.





## COMING EVENTS

13	TH	Orchid Exhibition at Birmingham (second day).
14	F	Quekett Club at 8 P.M.
15	S	
16	SUN	3RD SUNDAY AFTER EASTER.
17	M	
18	TU	
19	W	Royal Botanic Society's Summer Show.

### PLANTING VINES AND EARLY FORCING.

**T**HE old practice of planting Vines when dormant, or just as they are breaking into growth in spring, has almost become one of the systems of the past. It would doubtless die out if the convenience existed in all gardening establishments for raising young Vines and planting them out in a growing state. Varied circumstances often prevent this being done, and therefore the good old system is resorted to in many cases with the most satisfactory results.

However good or reliable the practice of planting ripened canes may be during the resting period or just as they are starting into growth, it cannot be favourably compared with planting young Vines from eyes in a growing state. Young Vines planted during the months of May, June, or July in a border prepared for them become thoroughly established before winter, and the second year make a stronger and better growth than would be the case if grown in pots for the whole of the first season. Nearly one season is saved by planting in a growing state, and the crop of fruit the second year will be nearly double from the temporary Vines what would be had from Vines turned out of pots and planted during the winter and spring. Planting when growing during the two first months named is only practicable where the Vines are home-grown for the purpose, and the greatest care is necessary, even under these circumstances, in preventing their being checked by removal from the house in which they have been growing to that in which they are to be planted. If they are purchased during the two former months, and have to travel any considerable distance they are almost certain to be seriously checked, and may be thrown back a whole season or more; the same progress will not then be made the following year as would follow if ripened canes were planted during the winter.

When Vines are home-grown for planting they may either be grown in pots until they are planted out or without them. Either plan answers admirably, but I prefer to grow them in pots until they are ready for transferring from 6-inch to a larger size. From this stage, instead of placing them into 10-inch pots as is usual, I would rather place them in boxes 15 inches long, 7 inches deep, and 12 inches wide, with one moveable side, or plant them in soil arranged on large slates. In each case a whole sod the size of the box or slate should be placed at the base, so that they are easily slipped into the border without breaking the ball. From the time they are placed in boxes or planted upon slates they are better grown without the aid of bottom heat; they will not grow quite so rapidly, but they are none the worse, and are less liable to receive a check when planted in the border. When the canes are 2 or 3 feet in length it is a good plan to top them and remove the first lateral growth from the last expanded leaf. This will compel the main bud from the axil of the leaf to push and form a leader. The young Vine for a time appears to stand still, but it is making roots in

quantity, and when the uppermost bud bursts again into growth the Vine will grow with increased vigour, and in strength will surpass untopped Vines. The base of the topped Vine will thicken very much more than those allowed to extend 5 or 6 feet before they are pinched, and the eyes at the base will be much more prominent and break with greater freedom the following season. When they start into growth after being topped they should be removed to the house in which they are to be planted. The temperature should be the same in their new quarters as that of the house from which they have been removed. Before planting them out they must remain in the house, standing upon the border, for a week or ten days, until it is certain they have not been checked by removal.

Planting is a simple process, for they can be slipped from the boxes or slates into the border without disturbing a single root or breaking the ball. A good soaking of thoroughly warm water should be given, which will remove any doubt of the Vines being checked by the temperature of the border being lower than that of the house. The young Vines with plenty of root room will grow rapidly, and those intended for fruiting the following season may be pinched when they are 5 or 6 feet in length and not allowed to extend further. The others may also be topped and then allowed to lead away again and extend to the top of the house if they can be thoroughly ripened; if not, extension may be prevented in order to attain this desirable end.

If Vines cannot be home-grown and planted out as advised they may safely be purchased in July or the following month, when the length of the cane has been developed and has commenced to turn brown at the base, without fear of their being seriously checked, provided they are hardened for transit and the whole of the main foliage preserved. It is much preferable to obtain Vines in this stage of growth and plant them out than to delay planting until the canes have ripened and the foliage has fallen. The balls of roots of such Vines when planted should not be broken or disturbed, for if the soil is pressed firmly round them the roots will quickly and freely enter the border. If an attempt is made to spread out the roots more harm than good will result. The notion that Vines seldom do well when planted with the balls of roots as turned out of the pots has no foundation in fact, as can readily be proved by existing Vines so planted. A moderately close moist atmosphere for a week or two after planting will soon excite such Vines into activity, and they will become well established in the border before winter, ready to make a vigorous growth the following season. When planted during the last month named, it is not wise to allow their growth to extend beyond the formation of a few leaves on the sub-laterals on each side of the Vines and at the top. If planted a month earlier more latitude in this respect may be allowed. It is surprising how the Vines will become established by the development of a few leaves only. From Vines planted during these months a very good crop of fruit may be taken from the temporary ones the following season, provided the canes were well developed and moderately strong when planted. Next to planting Vines that have been home-grown and 3 feet in length we prefer the system detailed to any other that we have practised.

Vines raised in one season from eyes can be thoroughly ripened, and will produce a good crop of fruit if they are not started into growth before January. When planted between Vines intended to form a permanent vinery they are very seldom started so early. The later they are started in the season the stronger they break into growth, and swell and finish much finer fruit than when pushed into growth early. Nowadays ripe Grapes are required by the end of April or early in the following month, and for this purpose Vines grown from eyes in one season are unsuitable. They are very often grown in pots for the supply of the earliest Grapes, but the crop from them so early in the season is not of the most satisfactory description. When subjected to such early



forcing they are generally prematurely ripened and robbed of that season of complete repose which is essential to success. It is almost impossible to ripen them naturally and rest them properly if ripe fruit is required in April or early May. They are frequently rested prematurely by being turned out of doors, and then, instead of being rested, are forced again into growth by the influence of strong heat. If started with a temperature of 45° to 50°, as often recommended, they will rest, and continue to do so for several weeks after they are started before they display the least signs of moving. What else can be expected? for the canes have not thoroughly lengthened out before the close of May; if no time has been lost, it is August before the cane has thickened and developed into full size, then it has to be ripened. I have always found that such Vines, whether home-grown or purchased, are unsuitable for the work for which they are required. I do not contend that a crop of fruit, such as it is, cannot be had from them, for I have had to force them on several occasions. Forcing of this nature is hard work, and always attended with much uncertainty. In the hurry to grow the Vines and get them ripened for starting they are not allowed sufficient time, and either fail to show fruit, or, if they do, they fail to bring the crop to perfection.

Vines, from which ripe fruit is cut during the time stated, should have their wood brown and, to all appearance, ripe by the end of May, and Vines in this condition, if the foliage is kept clean, generally retain their leaves long enough in autumn to considerably reduce their period of rest. This being the case with Vines producing ripe fruit, those grown from eyes and the wood not even brown for three months later cannot be expected to give such satisfactory returns as those that are thoroughly hard and ripe by the time they commence to ripen their wood.

The uncertainty of Vines grown from eyes for very early forcing leads me to shift them into larger pots and fruit them for a second and even a third year. This is an excellent plan, and each year the Vines are in better condition than in the preceding one, provided they are allowed room to develop their foliage and are not too heavily cropped. Another, and perhaps a better system, is to plant out the Vines in a narrow border where larger quantities of early Grapes are required, but these must give place to the method I am about to detail where fruit of fine size and quality is required annually early in the season.

For the purpose a narrow span-roofed structure is decidedly better than a lean-to, for the Vines can be so prepared that either side will produce a crop of fine fruit every alternate year. To be successful both sides of the house should be planted in a narrow border, say 18 inches deep and the same width. Planting may be done during any of the months named, but the side intended to fruit next spring should be planted as early as possible. The strongest canes for this side should be selected and planted 18 inches apart, on the opposite side small planting canes may be placed the same distance apart. If sufficient canes are not forthcoming for this purpose, a few that will be well ripened by autumn may be planted in July or August, so as to become partially established in the soil before winter. These, when the house is started, should be pegged on the surface of the border, and from these sufficient strong fruiting canes will be produced to furnish the roof for fruiting the following season. This is a good plan of furnishing the side of a house with fruiting canes without much trouble. The shoots nearest the extremity of the cane and the base will in all probability start away first, but to prevent these taking the lead they should be pinched when about 18 inches in length, and compelled to lead away again from the main eye by the removal of the lateral growth. These canes, in fact, may all be again pinched when they have travelled half way up the trellis. When they reach the extent of the trellis allowed them they should be again pinched, and the laterals stopped from time to time as may be required. These canes will be well ripened in time to produce ripe fruit by the middle of May if the

fruit the previous season has been ripened by the end of the month.

The Vines that have fruited should be syringed and the foliage preserved as long as possible after the fruit has been cut. At pruning time cut these canes close back and allow them to make strong clean canes for succeeding those on the opposite side. This will certainly be their condition if they receive the same treatment as those on the opposite side carrying the crop of fruit. These canes will be fully made by the end of April, and brown from base to the top by the close of May, and, therefore, thoroughly ripe in early autumn for pruning and starting into growth to bear the following season's crop of fruit.

Vines grown for early forcing on this principle can be syringed and the foliage kept clean, which might not be the case if mixed with those carrying fruit. By being fruited only every alternate year they thoroughly recruit themselves and are capable of carrying a heavier crop of fruit without permanent injury, which would be the case if fruited annually. It is surprising what effect a year's freedom from fruit-bearing has upon young Vines, for they recover from the strain of the previous year's work. By this system there is always one side of the house full of fine strong early-ripened fruiting canes, much stronger, and two or three months at the least earlier ripened, than it is possible to produce by raising the Vines annually for the purpose from eyes.

The narrow border with rich top-dressings annually and judicious feeding after the two first years will support the Vines well for five or six years, when another portion of the border, the same width, may be added, which will support them until they are pulled out and renewed. It is impossible for me at present to say how long Vines on this principle will continue to do satisfactorily, but by fruiting one side annually they are easily renewed without disturbing those required for the following year's crop. After the canes have fruited and are exhausted they can be taken out, a portion of the border removed, and then enriched with loam, manure, and other necessary essentials, and the whole trenched and well mixed. Young Vines planted at once in this border would become established before autumn and make strong fruiting canes to succeed those on the opposite side until they are cleared out and renewed.

This is the easiest and decidedly the best method I have practised, and the most certain for a supply of good fruit early in the season. Vines undoubtedly fruit much better from young canes early in the season than they do when grown on the spur system. Vines subjected to the spur system of pruning have failed with us early in the season, and we are not much surprised, for the first leaves nearest the base generally fall early in summer, and the shoots when cut back to these eyes have only a poor chance of producing a good crop of fruit. They are also much more liable to fail if the crop proves slightly too heavy than if the reverse is the case.—WM. BARDNEY.

## PROFITABLE GARDENING.

(Continued from page 329.)

MARÉCHAL NIEL ROSE.—No garden nowadays may be said to be complete without a plant or plants under glass of this wonderfully popular Rose, and those who have either to make a garden partially self-supporting or who are growing entirely for sale ought especially to cultivate it extensively. The very best positions for it are the roofs of conservatories and greenhouses, it being immaterial whether these be span-roofed or lean-to in form. As a pillar Rose I consider it useless, as each time we tried it a plentiful crop of green fly was the principal result. When trained thinly on a trellis about 6 inches from the glass it is much less liable to be affected by either mildew or green fly; and what is also of great importance, a great variety of plants may be grown satisfactorily underneath, which fact must not be overlooked when calculating the cost and returns. For instance, we find Azaleas, Camellias, Deutzias, Imantophyllums, Ferns, and Palms all succeed admirably under a thinly trained Maréchal Niel, and other Roses in pots have also done fairly well. This being so, no one need hesitate about



utilising the roof of one or more plant houses with every prospect of pleasure and profit accruing therefrom. In every case ample provision should be made for the roots, as unless liberal treatment is afforded in this respect the plants will not long remain profitable. The border may be either inside or outside, and any width, or according to the position and circumstances. If I erected a new house principally for this Rose a small glazed pit, say about 4 feet wide, would be built against the side walls, and this would serve for both the roots of the Roses and for Marie Louise Violets during the winter. Should they be planted in an outside border in a manner similar to Grape Vines both the border and the stems should be protected during the winter, or otherwise they flag badly after cold frosty nights, the check to the flow of sap naturally retarding the development of the blooms, and a few days may make a very great difference in the prices realised. Inside borders, besides being sometimes inconvenient, are more liable to be neglected, and neglected borders mean a weakly insect-infested growth. The borders to be well drained, and from 2 to 3 feet in depth. A suitable compost would be three parts good turfy loam to one of good partially decayed manure, to which may well be added a sprinkling of half-inch bones and lime rubbish. Should the loam be heavy and fibreless, then we would use only two parts of this, substituting one part of either good leaf soil or light garden soil.

Much the finest plants in the country are, I believe, on the Briar stock, but we have them very vigorous and floriferous on their own roots and fairly profitable on the Manetti. It is now too late to move them from the open ground, and consequently those who may contemplate planting at once must purchase pot plants, and these are generally on the Manetti stock. They can also be preparing other plants by budding a quantity of Briars, or, better still, they can insert buds into strong plants of Gloire de Dijon, on which the Maréchal Niel thrives admirably, and is much less liable to strangulation. It is pretty generally known that the Maréchal Niel is a most vigorous grower, the stems swelling more rapidly than do the Briar stocks, the inevitable consequence being an unhealthy swelling at the point of union, eventually resulting in a collapse of the plant. It is owing to this fact that there is still such a demand for both plants and blooms, as if all or the greater portion of those planted long continued healthy the prices would be much lower than they now are. This liability to break down at any time, not only from strangulation on the Briar, but also from canker when on the Manetti, being understood, it behoves cultivators to anticipate it as far as possible. Not only would we not rely entirely but one large plant, preferring rather to have three or four, but we would also have other younger plants ready to take their place directly they are needed. At the present time we have fresh healthy Briar stocks planted in an outside border and taken through into a house. These, budded where they are to remain, will grow away strongly and form long flowering shoots this season; and by allowing a few growths to form on the stem below where budded to act as "stem swellers," these being stopped occasionally and annually pruned, I hope to prevent eventual strangulation, from which cause we have lost two large plants. In whatever position they may be growing they ought never to become dry at the roots, and when the borders are becoming exhausted frequent supplies of liquid manure should be given, as well as an early mulching of good short manure.

With regard to training I shall not say much, as we have no formal plan. The plants are encouraged to grow vigorously and usually branch naturally, the growths being spread about thinly in all directions. Then when sufficient main branches are secured these may be treated somewhat similarly to Grape Vines—that is to say, all side branches to be spurred back directly after the flowering period or at the present time, and this results in the formation of fairly strong shoots, which if well ripened will produce blooms at nearly every joint. The free use of the knife usually insures an abundance of long flowering growths, sometimes 12 feet or more in length, whereas if the pruning is neglected little besides useless spray is formed. When a well-attended plant refuses to answer to the knife, producing a second crop of blooms rather than the desirable strong growths, it is a sure sign of the tree's decay. Plants cut back at this time should be syringed daily, or when the house is closed, and the temperature of the house may well be kept rather above that given to greenhouse plants. In fact the Maréchal Niel house is very convenient for finishing the growth of Azaleas and other forced plants.

It is not advisable to force this Rose at all hard, but if early blooms are required, and these usually sell surprisingly well, recourse should be had to pot plants. I would also advise beginners to largely cultivate pot plants till such times as the permanent plants have furnished the roof. It is rather late for striking cuttings, but there is no reason why the attempt should not yet prove remunerative. At the same time I may state that quite young "worked" plants can be bought in quantity and cheaply

from various nurserymen, and these, if grown as I shall describe below, would prove of good service for forcing. The best cuttings are those young shoots that have recently perfected a bloom. The latter having been cut leaves the shoot about 3 inches or 4 inches long, and this should be shaved off the main branches, using a sharp knife for the purpose, so as to have a small portion of the old wood or heel attached. Dibbled singly and firmly into 2½-inch pots, plunged in a fairly brisk bottom heat, covered with a handlight and shaded from bright sunshine, they soon strike root, and may then be exposed to more light and air. They ought still to be kept growing in gentle heat, being first shifted in 5-inch or 6-inch pots, and then finally into 10-inch pots. One or at the most two strong shoots should be allowed on each, these being properly supported with stakes as they advance. They will be improved by being stood out in a sheltered sunny position for a few weeks, but ought to be housed before cold and wet weather sets in. They may be either trained roughly round short stakes or be tied up the roof of a house, and if the temperature is maintained at about 45° to 50° by night, and 50° to 60° by day, good blooms should be cut early in February, when they would be worth from 4s. to 6s. per dozen, or according to the class of buyers.

It would be a poor plant that perfected less than twelve blooms, and at 4s. each plant they pay well. I prefer to raise fresh plants each summer, the old ones being available for planting against sunny open walls, in which positions they are also profitable. The permanent plants with very little stimulation can be had in bloom early in March, and a second house should keep up the supply till the middle of May; while in an unheated house they can be had still later. Only the very earliest and the finest should be sent to Covent Garden, where they may perhaps realise 4s. per dozen. Hereabouts the earliest with a frond of Maidenhair Fern are retailed at 6d. each, the growers getting 4s. per dozen. Later on the prices gradually drop till they can be bought for 2d. each, the grower getting 1s. 6d. per dozen, the prices always varying, as a matter of course, according to the freshness and size of the blooms. All should be cut when about half opened, in hot weather before that even, and be at once placed in a cool room in pans of water till packed. A friend of mine has cut 2000 good blooms out of a small span-roofed house 30 feet by 18 feet, the average retail and wholesale price being 3s. per dozen, or about £25 in all. This without much trouble or expense in the shape of fuel, and in addition to what grew in the house besides must be considered profitable gardening. I should add that the Maréchal Niel Rose is subject to the same diseases and insect pests as all other Roses, and to these we may allude some other time.—I. M., *Somerset*.

#### APPLES FROM THE ANTIPODES.

By parcel post this day I am sending you a few Apples which were grown by Mr. James Lang, Harcourt, near Castlemaine, Victoria, and sent by request of Mr. John Carson of Melbourne (late President of the Victoria Horticultural Society), to the care of Mr. G. F. Wilson, to be exhibited by the Royal Horticultural Society.

The Apples, which have reached here in fine condition, were each of them packed in soft paper with cotton wool round, and a layer of cotton wool between each layer of Apples, and were kept at a temperature of 40° all the way. The soil in which Mr. J. Lang grew them was decomposed granite.

Appended is a list of names of the Apples, and I hope the subject will be one of interest to your readers.

Scarlet Nonpareil	Blue Pearmain
Dumelow's Seedling	Merritt's Pearmain
Stone Pippin	Cleopatra
Reinette de Canada	London Pippin
Gipsy Queen	Sturmer Pippin
Perfection (Colonial and non-blighting)	Newtown Pippin
Worcester Pearmain	Munro's Favourite (Colonial)

—EDMUND BAX, *Assistant Secretary Royal Horticultural Society*.

[The specimens received are splendid—large, spotless, firm, and clear. If consignments equal to these samples can be placed in the markets of Great Britain during May, June, and July, and sold at about the ordinary market prices of English and American fruit, they could scarcely fail to command a ready sale.]

LECTURE ON THE DAFFODIL.—The notes on the Daffodil, read by me at a recent meeting of the Horticultural Club, were given the same evening to the Editor of the *Journal of Horticulture* to use as he pleased. I mention this because they were then in a very rough form, and the labour of reducing them to a shape in which they could appear in print, and which must have been considerable, was undertaken by the Editor of that Journal, to whom I think this acknowledgment is due, and I observe only one erratum, due, no doubt, to my carelessness in making one or two late additions to the notes. In speaking of the different forms of the mouth of the corona in Daffodils I appear to say that crispate refers to the same form as "fringed" or "fimbriate." This is not so, the fringed form



being caused by many deep incisions of the mouth of the corona close together.—C. WOLLEY DOD.

### MARIE VAN HOUTTE.

#### A ROSE SONG.

ONE flower give to me,  
Ere its clear petals all unclose,  
And deepest amber melts to faintest rose  
By love's own alchemy!

I care for none beside—  
Proud-souled Sunflower; Marigold;  
Nor Tulip with her jewelled mantle's fold;  
Nor Jonquil pheasant-eyed.

My love! my little one!  
Flushed, breathless, with the soft sweet snow  
Of her white bosom wrought to crimson glow,  
She bends before the sun.

Tall Lilies smile to her,  
And with their odorous faint breath  
Tell wondrous legends, which she whispereth  
To me, her worshipper.

In old Hellenic days  
My little Rose had lived I ween,  
Half flower, and half woman had she been,  
Yet goddess, too, always.

And none had scoffed at us;  
If Naiad wedded mortal man,  
Calmly his life passed, like her stream it ran,  
With whispers amorous.

And if, perchance, one day  
(Chasing wild creatures in the wood)  
Before the youth some bending dryad stood,  
And love sprang forth from play,

They strove not to make vain  
His loving tendance of her tree;  
And but smiled softly, and spake tenderly,  
"The gods of him are fain!"

But now our hearts are cold,  
And hurriedly our weary feet  
Leave the green woodland for the glaring street,  
Where all is bought and sold.

Yea, if a poet see  
Sweet shadows passing, broken gleams  
Of fairer life than ours—"The mad fool dreams!"  
They shout unceasingly.

Poor dryad of to-day!  
Some ruthless heart had bartered sure  
Thy leafy home for zeal's stern prison door  
Shutting God's light away!

My sun-flushed amber Rose,  
How far a thought of her hath led!  
Yet turn I loving more, where her sweet head  
Lightens the garden close.

What reck I if she be  
Goddess, or maiden, or mere Rose?  
The soul that loveth deeply only knows  
What she had been to me!

—EVELYN M. NOBLE.  
(Evelyn Pyne.)

### AMERICAN BLACKBERRIES.

MUCH has been written from time to time anent the cultivation of the American Blackberries in England, and many attempts to grow them have been made by skilful practitioners, including Mr. Muir of Margam, but without success—that is, not having produced samples of fruit equal in size, quantity, and flavour, as is said to be the characteristic qualities of these Blackberries as grown in America. The fact is our climate is just as unsuitable for growing these to perfection as it is certain other varieties of fruit introduced from the same region, and except in a few favoured localities it is useless to attempt to grow these American introductions. I have frequently seen examples of the common Bramble on the limestone hills in Worcestershire growing as luxuriantly and bearing as freely, and quite as large sized fruit, as I have seen in the case of the best grown examples of the American varieties. The many varieties now in the trade are nearly all identical with each other, and not more than a year since a variety was introduced from the land of brother Jonathan which was proclaimed by the introducers to be a marvellous example of vigour and productiveness, and in fact its merits were such as to place all previously introduced varieties quite in the shade. Wishing to give this novelty a trial, I was induced on the strength of the introducers' glowing description and engravings to order a dozen of "strong" plants, as no doubt many hundreds more besides myself were. Well, after waiting patiently for three months or more, the said plants arrived by parcel post. It was a small bundle truly, for on opening it I found

the "strong" plants consisted of little weak half-dried-up twigs, no thicker than a straw, and about 3 inches long. These were duly planted, but alas! only two survived out of the dozen, the latter making a feeble shoot each of an inch long; nor is there a prospect of my being able to get much better results again this year. It would be interesting to know how many more besides myself were treated in this manner. Surely this sort of thing amounts to something very much like imposition, for the least thing those who were responsible for the introduction of this so-called superior variety could have done was to have sent plants that were alive and possessed of nice fresh roots, so to have enabled purchasers the opportunity of fruiting the plants within a reasonable number of years. At any rate, I do not intend giving any more high prices for new varieties of Blackberries or anything else from that quarter. I am disgusted with the results obtained in return for the amount of time and money expended in their cultivation, and I doubt not that mine is no isolated case.—A KENTISH GARDENER.

### CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 351.)

#### LATE CHRYSANTHEMUMS.

CHRYSANTHEMUMS grown to produce late flowers are much appreciated; indeed they are by some more highly prized than the bulk of those blooming at the ordinary time—viz., the middle of November. To have them in perfection at the end of December and early in January the plants require to be specially treated. In the extreme south of England it is not so easy to have Chrysanthemums late as farther north. The seasons are much earlier in the south, consequently the plants come sooner into bloom. Much may, however, be done in furtherance of this object by selecting varieties which are naturally late in blooming. The selection given in a previous issue if adhered to will be found suitable. Nothing would be gained by naming more, as it is better to grow several plants of one sort which is good, than a few of many varieties merely for the sake of forming a large collection.

Cuttings of varieties intended to bloom late should not be struck till February, and the plants should be pinched three or four times to induce a dwarf habit and increase the number of flower stems. The last topping should take place about the first week in July. When bloom buds make their appearance towards the end of September disbud for one bloom on each shoot if good sized flowers are required; but if quantity is the primary object do not disbud so freely. At this stage supply the plants liberally with weak liquid manure, occasionally watering with soot water or any other of the various stimulants now in use. If they can be protected from light frosts keep them out of doors as long as possible in preference to taking them inside, as keeping them out assists in retarding them. A thin covering of canvas stretched on poles at night will ward off a sharp frost. After removal inside admit air night and day freely when the weather is at all favourable. When developing their blooms if at all wet or foggy keep the atmosphere dry by applying a little fire heat, the flowers last much longer in a dry atmosphere than in one charged with moisture. Nine-inch pots are large enough to bloom them in, and the same compost as advised for other varieties is suitable.

#### ARRANGEMENT OF GROUPS.

To arrange a group of Chrysanthemums for home decoration is much easier than arranging one for exhibition; for this reason—the former groups have not to undergo the critical scrutiny of men who have had wide experience in judging in this branch of horticulture by acting in that capacity at many shows where a variety of groups are seen in various forms. To arrange a group for exhibition in the best style requires some forethought and experience, even allowing that the necessary material is at hand which is required. I will describe what I consider is the best method of proceeding. The prevailing fashion is now to have the groups semi-circular or nearly so in shape. The one adopted by the Kingston and Surbiton Chrysanthemum Society is 50 square feet, being deeper in width than length. This Society may safely take the credit of being the pioneers of this method of growing and arranging Chrysanthemums, and some of the best groups that have been seen were staged in competition at its shows.

In preparing plants for the show a clear conception should be formed of what is required to effect the object in view; and it is wise for young growers not having had any previous experience to first arrange the plants at home on a space similar to that assigned in competition; the thread of the matter, so to speak, is then more clearly conceived, and the number of plants required more safely estimated. We will assume, then, that we are at the show and ready to commence operations. The allotted space to be filled is marked out, no matter the size—large or small, the method of procedure is the same. Commence by placing the front line in position. Possibly some growers may think this is wrong, but it is not so, as may easily be found by experience. Very often an other-



wise good group is spoilt by a defective front line. When a commencement is made from the back, and the plants happen to be tall, it is difficult to bring them down in due proportion without exposing too much the supports of empty pots and blocks of wood employed in the requisite elevations. Unless the plants are grown exactly to suit the purpose the plan of commencement of staging from the back is wrong; but if a start is made from the front a uniform range can be secured, and it is easier to build to a given height than one of imagination. As the work proceeds, if the plants are too tall they can go farther behind, and if too short raising is much easier accomplished without the supports being so much seen. If wire supports are attached to the stakes the work of arranging easily will be much facilitated, as any particular flower can be more easily brought into the required position. The height of the front row of plants for a group of the size named should be about 2 feet 6 inches or 3 feet, measuring from the ground; and the back row of plants about 6 feet, sloping evenly from this point down to the front; and from the centre line from back to front the plants should slope a little down to the sides of the group. This relieves the flatness otherwise caused by an even sloping bank from back to front. When quality has to be taken into consideration, as well as arrangement, the best means should be adopted of showing all the flowers on each plant.

The more variety in shape and colours of the flowers in reason the better. A really representative group of Chrysanthemums should consist of Incurved, Japanese, Anemone, and Reflexed varieties. The colours should be carefully blended. Never place two plants of one colour, or nearly so, together; decided colours, such as Cullingfordi and Elaine, go well together. Experience teaches this much better than any amount of written instructions, as perhaps the varieties which might be named in many instances are not available. The two varieties named will serve as an example. Some societies require special arrangements, such as all Incurved to comprise one group, and Japanese another; but to my mind the four sections named are really necessary to make a thorough representative group of forms and colours combined. The number of Japanese plants would naturally predominate, as by their light and graceful forms they are particularly adapted to this kind of work. The Reflexed varieties would be the fewest in point of numbers, owing to their somewhat stiff appearance. The newer kinds of Anemone Japanese are specially suited to this purpose on account of the peculiar formation and arrangement of the florets of some of the varieties.—E. MOLYNEUX.

#### MASDEVALLIA POLYSTICTA.

THOUGH less showy than Masdevallias of the Harryana and Lindeni types, *M. polysticta* is worth a place in any collection, as it is one of the most floriferous of the small-flowered species. The sepals are lilac-tinted or nearly white, freely dotted with purple, the tails filiform and much darker than the other portion of the sepals. The flowers are borne in racemes of six to eight or more, as shown in the woodcut (fig. 68), which was prepared from specimens kindly furnished by F. A. Philbrick, Esq., Q.C., Bickley, where the plant is an especial favourite. The two lower sepals are usually slightly contracted in the centre and not so regularly ovate as in the figure.

*M. polysticta* is a native of Northern Peru, and was introduced thence in 1874 by M. Roezl with *M. melanopus* and others. It succeeds well in a cool house with *Odontoglossums*.

#### HORTICULTURAL SHOWS.

THE following are the dates of the principal Shows to be held during May and June this year. The Rose Shows are given in another column. The great event of the season will no doubt be the provincial Show of the Royal Horticultural Society at Liverpool at the end of June.

##### MAY.

- 19th.—Royal Botanic Society, Regent's Park, Summer Show.
- 21st and 22nd.—Crystal Palace, Summer Show.
- 25th.—Royal Horticultural Society Committee meetings and Exhibition of Pot Roses, Azaleas, &c

##### JUNE.

- 8th.—Royal Horticultural Society Committee meetings; Orchid Exhibition.
- 9th.—Royal Botanic Society second Summer Show.
- 11th to 18th.—Manchester National Horticultural Exhibition, Old Trafford.
- 22nd.—Royal Horticultural Society Committee meetings and Pelargonium Show.
- 23rd and 25th.—York Floral Fête.
- 29th to July 5th.—Royal Horticultural Society Provincial Show at Liverpool.

30th.—Croydon Horticultural Show.

30th.—Royal Botanic Society's Evening Fête.

#### VIOLETS.

IN many parts of the country Violets do not grow wild. Where they do the competition for the flowers is such that it is difficult to get two or three. Very few people would think that they could have too many sweet Violets about their grounds if they could be had without interfering with the other flowers. Have such keen lovers of Violets observed that wild Violets inhabit hedgebanks, where they have shade from summer heat, and are protected in winter with snow? Nothing else can do it so effectively, and it gathers soonest, and continues long in such places. Violets do best where they have to compete with other plants for soil,



Fig. 68.—*Masdevallia polysticta*.

and where they cannot grow thick and rank, but have to creep about to look for a vacant spot amongst the shelter of taller vegetation.

Every country garden has many as yet unappropriated places. Orchard banks, corners under deciduous trees, under hedges, such as Thorn, &c., besides screens of an evergreen description, such as Privet, Holly, &c.; alongside of Filbert bushes, behind walls where Nettles and other rank weeds grow, amongst shrubs, near rubbish heaps, in any waste ground that can be found in copse or woodland, are suitable places for Violets. Unsuitable are heaps of rubble, gravel, and rock; hollows so wet as to be a morass or bog; deserts beneath trees excluding light and rain; and soil so pre-occupied with roots as to be dry as dust. Spring is the time to plant the Violets in the garden as soon as the flowering is over. Water until established, and keep them free from weeds. Let as many runners grow as will. Mulch in autumn or early winter with a little leaf soil or other partially decayed material, and let things have their own way another year. Healthy, not gross plants, make the most of the soil and position in which they are placed.

September, or as soon after as the ground selected is thoroughly moist, is the time to replant. Loosen the places with a fork to afford a free-



rooting medium and the refreshing influences of rain and air. Clear away the rubbish, and remove the roots of any coarse weeds such as Docks, Hemlock, Nettles, &c. Lift the plants carefully, preserving as much root as possible, and divide into as many parts as there are crowns with roots. Set the plants 9 to 12 inches apart, or wider, as plants are available, only in increasing the space, the labour of clearing for planting, and the after attention, as well as gathering the flowers, is proportionately increased with the area. Press the soil gently about the roots, and the autumnal rains will settle it about them perfectly. By spring they will be established—rooted and rooting—prepared to take and keep their place amongst the inevitable accompaniment of vegetation. Never plant Violets in the woodland in spring. It answers to do so in the garden, but not here. Summer is upon the plants before they have well got root-hold; the most they can do is to maintain existence among the contending vegetation; the plants grow but little, flowers are sought in vain—a year is lost.

As the weeds will to some extent be subdued by clearing and loosening the soil for, and at planting, little if anything will be required the first season. The plants are the better for some protecting or fostering vegetation, albeit a coarse rank growth of weeds should be kept under by pulling up some of it, and repeated a few times through the summer, particularly the early part, will be all the attention required. During the summer accompanying vegetation is of value in screening the plants from scorching sun. In September enough of the ranker weeds should be cleared away to admit light and air. A slight top-dressing of refuse, as the *débris* of the potting bench, rubbish heaps, leaf soil, or well-rotted manure, is beneficial. In this way Violets continue for years little lessened in vigour or floriferousness. Spare plants, when fresh beds are made in gardens, can have fresh places looked out for them, by which means there will always be abundance of Violets in spring.

#### VARIETIES FOR SEMI-WILDNESSES.

*Viola odorata*.—Wild Sweet Violet, inhabitant of our hedgerows, known to everyone.

*Viola odorata*, var.—Flowers grey. Local in distribution; prevailing most on the oolitic formations.

*Viola odorata*, var. *alba*.—Flowers white. Though common in some localities its distribution is not nearly so wide or general as the species, and though found plentifully in some parts, it is more likely they are acclimatised than natural. In the north, wild white Violets are rare, and many places, even in the south, where they are found, is eminently suggestive of their being introduced. *Albiflora* and some others are only forms of this.

*Viola odorata rubra*.—Flowers red or pink; free and distinct.

*Viola odorata suavis* (Russian).—Leaves more glaucous or less hairy than *V. odorata*, more erect, and stouter in texture; runners plentiful, soon becoming thickly interwoven. Flowers blue, one-third larger than the wild Violet. Crimean, Scotch, London, floribunda, are only slightly varied forms of this remarkably free-growing, profuse flowering, and very sweet Violet.

*Viola odorata suavis superba* (Russian Superb).—Larger in all its parts than the type. Flowers purple, occasionally rosy purple.

*Viola odorata suavis alba* (White Russian).—Differing little from the type, except that the plant is less free in growth and not quite so hardy, and in the flowers being white.

*Viola odorata argenteaflora*.—A distinct variety, raised by Mr. G. Lee, evidently a cross between the English and Russian forms of Violet. Foliage like the wild Violet, larger, and quite as hairy; flowers nearly twice the size of the common Violet, white or grey, suffused with rosy purple; spurs purple; footstalks long and wiry; produced over a longer period than any other Violet, but most abundantly in spring, very beautiful, and deliciously fragrant. Remarkably free in growth, hardy in constitution, and giving its flowers nearly all the year round, it is a valuable acquisition. Through the resemblance of the flowers to the wild Violet in form it is much appreciated by the æsthetic.—*VIOLA*.

#### GARDENERS AND PREMIUMS.

YOUR correspondent "Observer," at page 353, is inclined to find fault with me for not mentioning names in my communication on the above. Such a step I considered would have been extremely indiscreet, and I think I acted as ninety-nine out of every hundred would have done, and exactly as "Observer" does in his narrative of a similar case, which is such that no one need be ashamed to have his name associated with. I, on the other hand, had only what appeared to me a series of complaints to present to your readers as related to me by an aggrieved person, and whose statements might be exaggerated. I thought the mention of the case in your columns would test the truth or falsity of the matter. The gardener in question can give the other side, as your correspondent "Thinker" remarks, and by whose counsel copies of the Journal have been forwarded. If he can, and thinks fit, prove the rumours to be unfounded, no one will be better pleased than the writer. This will be a more agreeable proceeding than giving his name in the first instance, as suggested by "Observer" without previous intimation.

Referring to "Observer's" letter, I notice that in the "charitable" case he alludes to there are one or two rather curious features. After his friend received the letter from the young man anent flowers and hours of labour, he engaged him, yet there are always plenty of young men to select from, though perhaps not with £5 in their pockets. It is also stated by "Observer" that the young man was incapable of performing the duties he was engaged for. Here one is curious to know what efforts

were made by his paid teacher to instruct him? And if he was supposed to be competent what was the premium for? I also note that he was kept on after his incapacity had been discovered, and considerable forbearance seems to have been exhibited towards him by his chief, but whether actuated by philanthropic motives solely it does not appear clear. There is something peculiar about the £5 having to be paid the first year. Will "Observer" tell us how many young gardeners that enter pass the second year in that establishment?—W. P. R.

AFTER reading the article brought before us by "W. P. R." on page 342, and again by "Observer" on page 353, I was struck with a resemblance to a similar case, and have taken a little trouble in sifting out a few facts connected with the same, and I hope you will not close your columns upon this case until it has had a fair hearing. Since the last issue of the Journal, I have had an interview with a young man, who is, I assume, the same as referred to by "Observer," and from what I have gleaned of both sides of the question—namely, from "Observer" on the one hand and the young man on the other, I am satisfied there is at least good reason for disquietude and inquiry. Like "Thinker," I do not agree to found a charge on something that is "understood;" but let us examine the case. A young man was engaged, and did enter upon his duties upon terms pretty much the same as stated by "Observer." But the order of dismissal was different. The young man was employed in the earl's garden ten weeks (not several months), the wages 15s. per week, both, &c. During the first week's service the young man was asked if he was prepared to pay the £5 premium, and he replied he was not at present. Nothing more was said about the premium; but on the third week, and fortnightly after that, various sums were deducted from his wages to the amount of 27s. during the ten weeks' service.

Now let us look for a moment at the rate of deduction as admitted on page 354 by "Observer"—24s. This for a period taken from the young man's diary, and proved by the dates of entering and leaving, is ten weeks and four days. The custom, not the agreement, being for the £5 to be paid during the first year the amount deducted is at the rate of £6; but the actual amount deducted was 27s., making the sum of something over £7 for a year if taken at the same rate throughout. I am thankful to be able to say to the credit of head gardeners and the comfort of young gardeners that I know of no other similar cases.

"Observer's" defence of too much dress may be passed. The charge of not "turning out" and ignoring the foreman's authority is disputed, and the foreman knows whether it is true or not. As to using gloves in a stokehole, in three excellent gardening establishments where I have lived gloves have been, and are, provided for the young men to stoke in if they chose to put them on, and in many other places known to me. I now content myself by saying if the earl's gardener does not return the money deducted the noble owner of the estate will be strongly petitioned on the subject.—ANOTHER OBSERVER.

[We think it right to say that this letter has been sent to us by a head gardener of respectability personally known to us, as is "Observer," who is equally entitled to veracity. Both state what they believe to be true; but that is not a sufficient justification for our publishing the name of the noble earl's gardener referred to in the present stage of this discussion.]

#### MIGNONETTE IN POTS.

FEW plants in flower give greater pleasure during the dull months of the year than Mignonette; in fact, a succession of plants is indispensable in many establishments from the time they are cut off by frost in autumn until the flowers can be gathered outside in early summer. The supply, therefore, to meet this demand is, for the greater portion of the year, dependent upon plants grown in pots and others specially prepared in cold frames.

Mignonette is easily cultivated if a few simple rules are observed, but well-grown examples in private establishments are the exception and not the rule. Generally, a few brown, woody, miserable examples are to be seen, instead of healthy luxuriant plants bearing large well-developed spikes. A supply of healthy plants for room-decoration from November until May, and for cutting until we can gather outside, is one of the requisites of this establishment; therefore, the system of cultivation pursued may prove helpful to beginners.

For flowering on standard and pyramidal trellises from November through the winter, seed should be sown at once and again in about a month for spring flowering. If cool greenhouse treatment throughout only can be given sow the seed now, for the plants will not grow so rapidly as those raised in heat. The best variety for this purpose is undoubtedly Miles' Hybrid Spiral. The seed can be obtained moderately true, but some small-foliaged varieties are almost certain to appear, which should be thrown away directly they are observed, for they will never give satisfaction. It is, therefore, necessary, when bought seed has to be relied upon, to sow more than are required to be grown on for a time until the best can be distinguished. The most reliable plan is to select for seed-bearing from the first year's plant a good strong grower, free brancher, and one that produces large fragrant spikes. Some are much more fragrant than others, and those possessing only a faint perfume in spring will be almost scentless during the winter. Pots 3 inches in diameter should be prepared by placing a few small crocks at the base, and then fill with a compost of loam, one-third leaf mould, one-seventh of decayed manure, and a little sand, the compost being pressed firmly into the pots, which must be perfectly clean and dry. The seeds, three or four in number, should be sown in the centre of each, and then lightly covered with the same



compost. Place the pots where a night temperature of 60° can be maintained, and where they can be kept gently moist and shaded from the sun until germination takes place. Those only having cool structures should follow the details that will be given, for the only difference in the end will be that the seed is longer germinating, and the plants will be longer before they are ready for their largest pots. At one time we sowed the seed in thumb pots, but have discontinued doing so, because they were difficult to keep moist, and the plants require repotting before they attained much strength. We advise intending cultivators not to use smaller pots than those named.

When the young plants are large enough to handle, thin them to two or three, until it is certain they will not go off, when the most promising plant only should be left when intended to train them upon standard trellises. When good-sized pyramids, or even large bushes are required, three or four plants may be left in preference to one. For this purpose the seed may be sown evenly over the surface of the soil instead of the centre, so that the young plants left will not crowd one another. Those required for standards must have a small upright stake as soon as they are 2 inches high, by which time they will be ready for transferring into larger pots. This time 5 and 6-inch pots will be the most suitable. By the time they are about 1 foot high they will be ready for potting in their largest size. During the time they are growing upright remove all lateral growths as they appear in the axils of the leaves until sufficient length for the stem of the standard has been attained. By the time the plants are established in the 5 and 6-inch, they must be gradually hardened to cooler treatment until artificial heat can be dispensed with. Care must be taken in lowering the temperature that the plants are not checked, or they will become woody, and when this takes place they never make free growth and luxuriant specimens afterwards. Those required for pyramids should, until they are placed in their flowering pots, be trained upright to as many stakes as there are plants in the pot. The central one must have the lateral growths removed from the axils of the leaves until it is about 9 inches in length, when it may be stopped and allowed to branch. Three shoots for training towards the edge of the trellis will be ample, while a fourth should be trained upright. When bushes are required the plants may be stopped when they are about 4 inches high, and this must be practised from time to time when the same amount of growth has been made until a sufficient number of shoots has been formed. The shoots as they are made must be supported with slender stakes; if not, they are very liable to be broken. For the earliest-sown plants, whether standards, pyramids, or bushes, 10-inch pots should be employed. For later-sown plants 8 and 9-inch pots will do if the smallest trellises are selected.

Great care must be taken when potting the plants that they are not checked in the operation. The roots are easily broken, therefore the pots used should be perfectly clean, and the crocks used for drainage should be moderately small, so that they can be easily removed from amongst the roots. From the time the seed is sown they must never suffer by insufficient root room until they are placed in their flowering pots, or they will be ruined. Directly plenty of active roots have reached the sides of the pot the plants must be shifted into larger. When given their last shift they certainly appear as if they were overpotted, for the pots are certainly large in proportion to the size of the plants, but this must be the case if success is to be attained. The flowering pots must be liberally drained, and the compost pressed moderately firm into them, not as hard as it is possible to ram it, for we have proved that this course is a mistake, and often proves detrimental to the plants. The compost should be the same as advised for the seed pots with the addition of one 5-inch potful of soot and the same quantity of bonemeal to each barrowful of soil.

The pyramidal trellises may be home-made, and the plants trained to them as soon as they are established in their flowering pots. A round hoop should be made of moderately strong wire, 18 or 20 inches in diameter, which should be secured at the base by two flat stakes placed across each other. These should be held in position by a hoop of copper wire just beneath the rim of the pot. If the cross stakes are secured to this they will support the outer rim intended for the base of the trellis. A moderately strong central stake, 20 inches or 2 feet in length, should be placed in the centre of each pot to carry the six or eight strings, copper wire being the best and most durable, that will be stretched across it from the hoop. Small nicks may be cut into the top of the stake to carry them until they are secured on both sides to the hoop, when the whole may be bound firmly at the top to the stake with thin copper wire. Standards can be purchased ready made, or may be made to order. A very serviceable size is to have the legs above the soil 1 foot or 14 inches in length, with heads about 18 inches in diameter moderately well sounded. We have some with stems over 2 feet in length, but they are not so effective, and this year we are discarding the whole for shorter stems, which displays the head to greater advantage when the plants are used for room-decoration, and have to stand singly in a vase on a small table or other similar position; in fact for all kinds of furnishing purposes those with the shorter stems are the most desirable. Those grown in 8 and 9-inch pots have trellises with slightly smaller heads; in fact these do not exceed 15 inches, the legs being the same as the others. Most of the purchased standard trellises have a quantity of close wirework in the centre, unless otherwise ordered, which certainly makes the trellis much neater in appearance when passed from the wireworkers' hands than the one I intend to recommend. This close wirework, although it looks well, proves a nuisance when the plants have first to be placed on them.—N. G.

(To be continued.)



At a general meeting of the ROYAL HORTICULTURAL SOCIETY, held last Tuesday, Major F. Mason in the chair, the following candidates were unanimously elected Fellows—viz., Edward Crofton, Robert A. Dalyell, C.S.I., Charles Fielding, O. T. Hodges, Henry Holmes, William Brittain Jones, Miss C. S. Morison, John C. Sanderson, John Scott, jun., S. J. Smith, Robert George Veasey, Mrs. William Wright. In addition to the above (69) corresponding members were elected.

— RECENT WEATHER CHANGES have been somewhat remarkable. Last Friday the thermometer registered 78° in the shade at Greenwich Observatory and 131° in the sun; four days afterwards we read of snow in Cumberland. The mean temperature of the air last week at Greenwich was 55.2°, or 5.5° above the average of the corresponding week of the twenty years ending 1868. The weather yesterday (Wednesday) was cold and showery in London.

— SPRING STRAWBERRIES.—Mr. J. Muir writes:—"Up to this time we have had three sorts in fruit. The first to ripen was Black Prince, the next Keens' Seedling, and the third James Veitch. Of the three Black Prince is our favourite, as it fruits more freely than any of them, is of a good size, and peculiarly pleasing in flavour. Keens' Seedling is also prolific and fine in flavour, but not so rich in colour. James Veitch is the most handsome, producing fruit of great size, but very few of them compared with the others, and it is not a sort I would grow for profit."

— AN Essex correspondent sends us a stem of a TULIP bearing THREE FLOWERS, which is evidently due to fasciation, the flower stalks being separate at the upper part and two of them furnished with leaves. At the lower portion the stems are consolidated into one. A combination of two flowers in this way is sometimes seen, but the fasciation of three is seldom seen.

— THE preliminary reports of the HORTICULTURAL CONGRESS AT PARIS this year (May 11th-16th) have just reached us. They comprise contributions by Mr. A. F. Barron, and M. M. Hediard, Godefroy-Lebeuf, Georges Bellair, Thierry, E. Roze, Van den Heede, A. Bleu, J. Dybowski, A. Chaugeraud, Charles de Bosschere, and several others on a variety of subjects to be submitted to the Congress for discussion.

— MESSRS. J. CARTER & Co have now a good display of CINERARIAS AT THEIR FOREST HILL NURSERIES, considerable space being devoted to these popular plants for yielding seed. For several years great care has been exercised in improving the strain of Cinerarias, and numbers of very bright colours have now been obtained, the blooms also of good size and substance. All who have greenhouses or conservatories know the value of these plants quite well, their richly coloured flowers being most welcome when the scarcity of other floral attractions is rather too marked.

— "B. D." writes:—"I have ODONTOGLOSSUM ROSSII producing a large pod of seed. O. Pescatorei, O. tripudians, and the Dendrobium nobile, with numerous other plants, were in bloom in the same house at the same time as O. Rossii. I think O. tripudians was gone too far to give pollen. Consequently of the large variety of flowers on fine days bees were attracted into the house in large numbers, so I conclude the bees must have fertilised the flower in question. Several gardeners have seen the plant, but they are like myself, do not know if O. Rossii often yields seed in this country. I shall be greatly obliged if some reader of the Journal could inform me whether it is a general occurrence for O. Rossii to yield seed so freely, also if it is worth trying to ripen; if so, the best treatment that will suit the plant in order to get the seed properly ripened."

— "D., Deal," writes:—"Woe is me! Shall I be prosecuted for libel, or will the Mayor write to *The Times* and show me up as a slanderer? I wrote on MR. GEO. MOUNT'S NURSERY, 'a city so abounding in churches,' which somehow or other got transformed into 'a city so abounding in smoke.' My poor dear Canterbury! than which there are fewer places that have so strong a hold on my affections. To say it abounded in smoke when it is guiltless, I believe, of even one factory! There are



one or two other mistakes. I suppose I do not write in that copperplate character I used to, or else another compositor has arisen who does not know my caligraphy."

— AT the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 19th inst. at 7 P.M., the following papers will be read:—"The Severe Weather of the Past Winter, 1885-6," by Charles Harding, F.R.Met.Soc. "Description of an Altazimuth Anemometer for recording the vertical angle as well as the horizontal direction and force of the Wind," by Louis M. Casella. "Earth Temperatures, 1881-1885," by William Marriott, F.R.Met.Soc. "Note on the After-Glows of 1883-1884," by Arthur W. Clayden, M.A., F.R.Met.Soc.

— AN exhaustive article upon the ORIGIN OF THE POTATO is given in the issue of *Nature* for May 6th, in which the references are given to a number of early writers who mentioned the plant, and some interesting quotations from various sources to illustrate the subject. The author, however, states that the "whole question is by no means yet worked out," but some of his most important conclusions appear to be that the Potato "was known in several botanic gardens in Europe before the time of Gerard's first catalogue;" and "that Gerard in some way received information from or through Clusius that the plant was first discovered in America; America here evidently means South America."

— A CORRESPONDENT of the *Glasgow Evening News* says that "having occasion to call at Kincardine School-house, Blair Drummond, recently, he enjoyed a great treat in an extensive display of the choicest stage AURICULAS in bloom. Those unacquainted with these exquisite flowers have no idea of their rare and varied beauty, and growers of them would be even more delighted with the sight of their favorites so well grown and bloomed, as this fine collection is now about its best." We happen to have before us a number of flowers of seedling Alpines raised by Mr. Kilgour, whose collection is above referred to, and without saying they are worthy of names as distinct varieties, they are still by far the best unnamed seedlings we have seen this year, and most if not all of them are worthy of preservation and culture."

— OZONE FROM FLOWERS.—It is said that a "professor at Pavia has discovered that ozone is generated in immense quantities by all plants and flowers possessing green leaves and aromatic odours. Hyacinths, Mignonette, Heliotrope, Lemon, Mint, Lavender, Narcissus, Cherry Laurel, and the like all throw off ozone largely on exposure to the sun's rays. So powerful is this great atmospheric purifier, that it is the belief of chemists that whole districts can be redeemed from the deadly malaria which infests them by simply covering them with aromatic vegetation. The bearing of this upon flower culture in our large cities is also very important. Experiments have proved that the air of cities contains less ozone than that of the surrounding country, and the thickly inhabited parts of cities less than the more sparsely built, or than the parks and open squares. Plants and flowers and green trees can alone restore the balance."

— "W. I." states that "The best CINERARIAS I have yet seen in a private garden are now on view in the conservatory adjoining the residence of A. R. Trotman, Esq., The Elms, Frome. They form a grand bank along one side of the house, the front row standing on the tessellated floor, and as no bright sunshine ever reaches them, the plants also being perfectly clean, the display will most probably last till near the end of May. They are grown in pots ranging in size from 7-inch to 10-inch, and every plant will bear close inspection. The strain, it ought to be noted, is Messrs. Cannell's, and contains a good percentage of extra well formed flowers in various colours, including a remarkably fine white, which may be said to be the cream of the collection. This is no chance success, as Mr. Trotman's gardener never fails to grow them well, and one of his secrets—an open one, however—is cleanliness. At no time are green fly allowed to gain a footing, and little or no fire heat is ever given beyond what may be necessary to protect them from severe frosts when coming into bloom. Every plant is given plenty of room from the first, and the Cinerarias are never "jumbled" up among a miscellaneous collection of plants. They pay well for liberal treatment, as all who have seen Mr. Trotman's collection will readily admit."

#### LIQUID MANURE FOR ORCHIDS.

ALTHOUGH many of the epiphytal Orchids may not be benefited by the direct use of liquid manure I find that by syringing between the pots

and damping any dry surfaces under the stages, &c., two or three times a week, an improvement takes place in the foliage, and the roots hanging from the pots and baskets evidently enjoy the application, and carry the constituents of the manure to other parts of the plants. Aerides, Vandas, Cattleyas, Masdevallias, Odontoglossums, and Phalanopsis all like the ammonia arising from it. But little difference is noticed between the use of Clay's Fertiliser or the liquid drained from the cowsheds and stables, and which is diluted to the same strength as for Pelargoniums usually. Most of the terrestrial Orchids receive much nourishment from its use in the ordinary way from the watering-pot. Some of the Cymbidiums, Cypripediums, Cyrtopodiums, Mormodes, and Zygopetalums may be kept in the same pots for years and the roots remain in good condition, as they receive such food from the manure that the roots become so matted together it would be rather difficult to remove any of the old compost without injury to the roots. Anguloas, Arpophyllums, Lælias, Grammatophyllum Ellisi, Houlettias, Lycastes, Phaias, Sobralias, and Trichosma do well with the same treatment.—G. W. C.

#### EUPATORIUMS.

No doubt many gardeners will agree with me when I recommend the Eupatorium to be cultivated for winter work. *E. odoratum* and *riparium* we find most useful for ordinary decorative purposes, and if the cuttings are taken off and inserted singly in thumb pots, placing them in a gentle heat, they will soon become rooted and be ready for their final shift. The sizes most useful for ordinary purposes are 48 and 32's, but if large specimens are required three or four plants may be placed in a 16, or any other size the cultivator may require.

Eupatoriums delight in a rich soil; loam and cowdung in equal parts, with a good dash of sharp sand to keep it porous will be found to answer well. After they have become established air may be admitted freely to prevent their becoming weak. Stopping is necessary once during the summer to make them break well from the bottom; after the growth is almost completed they may be trained into the shape required. With small plants we find it best to insert four stakes round the edge of the pots, training the shoots down as to form flat heads after placing them near the glass to prevent their being drawn. Copious supplies of water will be necessary at all seasons, and liquid manure will be found very beneficial when the plants are making their growth. They last moderately well in rooms, and the flowers are very useful for using in a cut state, its white flowers and bright shining foliage making a good contrast with other plants of the season, and when given a fair trial I think professional or amateur gardeners will not regret the trouble bestowed upon them.—G. P.

#### ORANGE CULTURE IN FLORIDA.

(Continued from page 364.)

THE more thorough the cultivation the better the results. The ground should be kept clear of weeds and grass. It should be planted with some kind of crop which will grow rapidly and speedily cover the land, affording protection from the sun. If the planter does not wish to take anything from the soil it can be planted with cow peas. Several crops of these may be grown and turned under during the year, and add nitrogen—the base of ammonia—to the soil. Should the planter wish to gather crops from the soil while the Orange trees are growing, to lessen the expense or pay for the cost of cultivation, he can plant vegetables, Cucumbers, Cabbage, Tomatoes, Beans, &c. But if at the same time he would benefit and not damage the ground for Oranges, he must be careful to add yearly more fertility to the soil than has been taken from it by the crops removed.

All material containing either nitrogen, phosphoric acid, or potash, provided no one or two of these be given in excess, is beneficial. These materials enter into the composition of all plants in a certain ratio, governed by the particular species. The Orange tree has its own formula. The intelligent planter should ascertain as nearly as he can what this formula is, and then as nearly as possible what his soil contains, and then supply the deficiency. When the trees are young they need more of ammoniated manures; when fruiting they need more of phosphoric acid and potash. Stable manure is a standard. It should be well rotted before it is applied. It is better to compost it with muck, leaves, grass, or any other vegetable matter. When vegetable matter, with or without muck, can be obtained it is well to compost with bone, and some one of the salts of potash. When muck cannot be obtained sulphate of lime should be added to retain the ammonia. Many of the commercial manures are good, and can be used with great profit. Where the planter wishes to combine his own fertilisers the following is an excellent formula:—Equal parts of Cotton seed meal, ground bone, sulphate of lime, and sulphate of potash. Vegetable mould or muck can be substituted for sulphate of lime. When these substitutes are used they should equal in bulk all the rest of the material. The pile should be frequently turned to insure uniform combination.

The following directions as to gathering and packing are suggested:—The fruit should be clipped with a stem as short as possible from the tree; handled carefully to prevent any bruising, and cured before packing. The first handling of the fruit is most important, for then it is more easily bruised than later. Any Orange falling on the ground should be rejected, as it is likely to have been damaged by the fall. If the weather is warm and damp prior to packing the fruit it should be subjected to fumes of sulphur to destroy any germs of fungi. With proper care in handling and curing the Orange I doubt not it can be preserved for months after it is gathered, and so extend the time of marketing throughout the year.



Florida has never yet produced fruit enough to force a fair experiment in this direction. Her crop, so far, has been annually consumed by the beginning of summer. The foreign Oranges that are sold in many of the northern markets during the summer as "Florida Oranges" are but the continuance of frauds begun in the fall or winter upon the credit of the superior quality of the Florida Oranges. If anyone wishes to detect this fraud he has but to look through a box of Oranges sold as "Florida" during summer, and see if he can find a russet-brown Orange, the peculiar mark of Florida. The russets keep longer, and are really sweeter than any of our Oranges; but neither they nor any other Florida Oranges are to be found, thus far, upon the market during summer. I should make one exception. Occasionally a few of a second crop are sold in summer. But so far, the people of Florida will pay a higher price for such Oranges than can be obtained outside of the State.

The fruit is usually wrapped in tissue paper, and packed in boxes of standard size. Transportation has greatly improved within the last few years. The business has become so great as to occasion many competing lines. But transportation is not yet what it should be to insure the best results. Freights are becoming reasonable, but unnecessary delays often occur, and the boxes are often handled like the luggage of the traveller, as though to make a short search for explosives within. Shippers should select those lines which handle with most care.

Mr. A. A. Robinson, Commissioner of State Bureau of Immigration, has also given some valuable hints on this subject as follows:—

The Orange can be more extensively and profitably grown in Florida than in any other State of the Union. Louisiana, Texas, and California will in time compete with us in the production of this popular fruit, but from advantages we enjoy in certain peculiarities of climate, soil, and seasons, it is more than likely that Florida will ever retain a superiority over any other section of the country in its production.

The history of Orange-growing in Florida as an industry is very recent. True it is that our primeval forests abound, in some localities, in native wild groves. With the first settlement of St. Augustine by the Spaniards, it is probable that the Orange was planted and cultivated with success. During the period of American occupation, from the cession in 1819-21 up to the close of the Civil War in 1865, many Floridians had planted and matured extensive groves, prominent among which was the renowned Dummit Grove on Indian River, together with others of less size at St. Augustine, and at several points along the St. John's River and at Tampa Bay. Still these *ante-bellum* groves were merely among the embellishments of home surroundings with a few wealthy proprietors, as fishponds or other ornamental features sometimes are upon the premises of northern men of wealth; but nowhere in Florida was Orange-growing regarded as a business to be pursued solely for profit.

After the late war, the winter climate of Florida was sought by hundreds of northern people in pursuit of health. The beauty of the rich golden fruit and its dark-green foliage attracted the eye, and, as many of these visitors bought and improved homes along the banks of the St. John's and other accessible points, they began the propagation of the Orange. Gradually the facilities for its culture and the wonderful profitability of the business became apparent, and induced investments in small tracts for the purpose. Year after year, as at various points additional trees and young plantings came into bearing, the great superiority of the Florida fruit over any other made itself felt in the north. The demand for "Florida Oranges" began to grow, prices advanced, improved methods of propagating, by budding, pruning, and fertilising obtained; year by year the demand and supply continued to increase. Soon, choice locations adapted to the culture of the fruit began enhancing in value—lots that for fifty years had remained vacant at 1 dol. 25 cents. per acre, were found to command and readily bring 50 dols. to 100 dols. per acre. And so the enormous profitability of this industry became noised abroad, and the "Orange fever" was fairly established, and not without good cause; for however extravagantly the subject has in many instances been treated by some writers, not always without selfish purposes, in inducing sale and settlement of lands, there is no shadow of doubt as to the really sure and safe ground for the investment of untold thousands of dollars in making Orange groves.

One thousand dollars per acre per annum has time and again been realised from this business. Indeed, double that amount per acre has been frequently made; and with proper culture and fertilisation, where the latter is needed, 1000 dols. per acre is an available crop. Like all excellent things, Orange culture has many and serious obstacles to its successful accomplishment. Being a new business, there is not a vast amount of experience to govern and direct the beginner. Almost as many different theories exist as to the most improved methods of culture as there are men engaged in it.

The natural enemies of the tree and fruit are numerous, and not very well understood. An entomologist recently sent from the Bureau at Washington reports having discovered no less than thirty-five different insects that are in a greater or less degree damaging to the Orange. Judicious selection of locality as well as location for groves are most important matters. The selection of stocks, buds, seeds, and the best methods of planting, protecting and cultivating, are all material factors of success. Frosts, droughts, gales, and other casualties are to be considered, and time is largely of the essence of the undertaking. We believe, from experience thus far, that, on an average, it requires twelve or fifteen years to make an Orange grove very profitable from the time of planting. True it is that in some, perhaps many instances, where the environments were in all respects most favourable, much better results have been obtained.

While Commissioner of Immigration the writer has had numerous

inquiries made of him from all parts of the country as to the advisability of "poor men" coming to Florida for the purpose of engaging in Orange culture. He is frequently asked: "How much capital is required to enable a man to engage in growing Oranges?" "Can a man with very moderate means put out an Orange grove and make a support off the land while the trees are growing?" &c. These, like many others of analogous character, are very pertinent inquiries, but quite beyond most persons' capacity to answer. The amount of capital required depends, of course, on the extent to which the enterprise is pursued. The cost of land, trees, labour, and support are all involved, and these vary as to localities and what might be thought a support by different people.

It has been customary heretofore, by writers on this subject, to submit estimates of the cost of these several items, appended to which frequently occurs such an entry as "value of five acres in bearing trees, seven years old, dol.—," &c. We will attempt no such table. We have been quite unable to reconcile the great discrepancies of experimenters in their estimates of bringing a grove into bearing; too much so, at any rate, to be able to digest therefrom reliable data for the guidance of others.

We believe, however, that Orange-growing, while, of course, it can be engaged in at a decided advantage by those who have means to conduct it on a cash basis and be independent of support until such time as the grove is an assured success, does not, nevertheless, present any insurmountable features to "poor men"—by which term we mean, in this instance, men without ready money, and dependent upon their own labour for support. Indeed, in the knowledge of the writer, many of the most successful, and, to-day, independent Orange proprietors in Florida, began the business with no other capital than their own labour.

But, for fear of misleading minds prone to overlooking the details when so dazzling a prospect is offered them of converting in few years acres of 1 dollar 25 cents. land into bonanzas yielding princely incomes, we caution them that there is a long hungry gap between raw Pine woods and groves of bearing Orange trees. It takes many hard licks, plenty of pluck, assured health, good luck, and favourable auspices. To all of which a large family, had health, indolence, inexperience, or accident are possible drawbacks.

It has been urged that the profits of Orange-growing would directly attract so many to the business as to overstock the market and break it down, but a little reflection will dissipate such fears. Apples sell as readily now, and at as good prices, as they did forty years ago, and yet there are millions of acres suitable to growing Apples where there are hundreds suitable to growing Oranges, and there are millions of Apples now on the market where there used to be one. If the Apple market cannot be so overstocked as to break it down, much less can the market for Oranges. The consumption of the Orange within the United States is put down at 600,000,000 per annum. A little above 50,000,000 of that supply is furnished at home; the remainder, as shown at the custom-houses, is made up of receipts from abroad.\* We furnish about one-twelfth of the supply, while foreign sources furnish the other eleven-twelfths. The ease by which we can effectually occupy the market when our supply is sufficiently enlarged is shown in the fact that the foreign fruit is frequently sold in the market as "Florida" fruit to procure for it a more ready sale. Ours is of a better quality and richer flavour, and the foreign article finds a market among us only because the home supply fails to meet the demand, and this demand is increasing almost as rapidly as Orange trees in Florida are multiplying.

### THE ROYAL HORTICULTURAL SOCIETY.

THE present condition of the Royal Horticultural Society, and the efforts which are being made to improve its position in the eyes of the horticultural world, are of great interest to gardeners. It is too evident from the facts given in the article on page 327, relative to the founding and after career of the Society, that the name has all along been a misnomer, and an institution which should have had for its principal object of existence the welfare, not only of horticulture, but also of the gardening community, has had its funds diverted into a channel altogether alien to the real interests of a horticultural society. The present Society has, in fact, ever since its unfortunate alliance with the Commissioners in 1861, been gradually developing itself into a competitive rival with the Crystal Palace and Rosherville—a mere place of fashionable resort. If a census of the present Fellows were taken, it would be found that three-fourths of them joined the Society, not for their love of or sympathy with the cause of horticulture, but for the attractions and convenience of a select local promenade. The horticultural section should throw off the Kensingtonian yoke as soon as possible, and endeavour to reconstruct the Society upon a wider and firmer basis elsewhere. The Society will thus secure a far greater amount of support, not only from a class of men who are daily manifesting a great interest in the welfare of horticulture, but also from the great body of gardeners themselves than it has ever previously received.

When those who really have the interests of the Society at heart make up their minds to quit South Kensington altogether, and to reconstruct it elsewhere, we hope the claims of gardeners to have a voice in its management will not be overlooked, and that provision will be made for allowing the fraternity the opportunity of becoming at least Associates, if not Fellows, at a reduced annual premium—viz., half a guinea. Of course

\* This was in 1881. In 1884 the shipments exceeded 150,000,000.



the privileges would not have to be so great as for those who paid, say two guineas, but surely it would be conducive to the welfare of the Society to secure the co-operation of gardeners, numbers of whom would be glad to be associated with it on some such terms as suggested. Still more substantial help would be forthcoming from the rich classes of the mercantile community than is now given when the Society resumes its proper functions.

The difficulty appears to be in securing suitable premises to carry on the work of the Society in a central position. This, however, is a question of ways and means, a problem which is surely capable of solution. Some have suggested the Thames Embankment, others the neighbourhood of Regent's Park. No doubt a suitable place will be found if it is sought for by practical men. I should like to see the Society flourishing with the support of wealthy patrons of horticulture, the nursery trade, horticultural builders and gardeners. Let these several classes directly interested in horticulture combine, and we shall no doubt soon see the Royal Horticultural Society develop into an institution thoroughly representative of British horticulture; at least that is a dream not altogether hopeless of realisation by—A BRITISH GARDENER.

## THE HUNTINGDON NURSERIES.

(Continued from page 362.)

HARDY perennial, herbaceous, bulbous, and alpine plants are extensively cultivated, patches sufficiently large to exhibit the general effect of each being grown in addition to the usual sale plants in pots or otherwise. Those most remarkable at the time of my visit (the third week in April) were *Anemone stellata* fulgens, brilliant scarlet, a gem for cutting; *A. appennina*, blue and its white variety, which, with the Wood Anemone (*nemorosa*), and its variety *lutea*, bright clear yellow, are fine for naturalising. In the mass they are simply charming. *Adonis vernalis*, large yellow flowers, is doing better than is usually seen. *Orobis vernus*, with its pretty pea-shaped flowers, rosy purple, about a foot high is effective; but far more telling is a species of *Henbane* (*Hyoscyamus physaloides*) with very dark metallic foliage, and Prussian blue, almost black flowers. In strong contrast with the last is *Symphitum officinale variegata*, its clear yellow variegation on its bold foliage being very effective. *Aubrietia græca*, sheets of purple, is one of the best, and *Doronicum austriacum*, with its large yellow flowers and bright green foliage, effective. *Pulmonaria paniculata alba variegata*, a mass of white flowers about 1 foot high. *Sanguinaria canadensis*, only a few inches high, and with snow-white flowers, lead up to the larger *Ranunculus amplexicaulis*, pure white. *Erythronium Dens-canis* and var. *alba* have remarkably pretty foliage; and not less interesting in foliage is the beautiful *Tulipa Greigi*. The yellow *Tulipa sylvestris* is also charming. It does well naturalised in woods; and *Triteleia uniflora* and *lilacina* are eligible for a similar purpose. *Fritillarias* in masses are most telling, the stately growth of the Crown Imperials, about a yard high, capped with flowers, being very beautiful. The best were *F. imperialis flava plena*, yellow; *F. imperialis monstrosa*, very large bells, red; *F. imperialis grandiflora*, very large heads of bloom as well as flowers, and bright in colour; *F. imperialis rubra plena*, double red, and variegata, pretty sulphur-edged variegation. Brighter in colour than most is *F. imperialis rubra*. *F. Meleagris*, bell-shaped drooping flowers, just showing its purple finely marked flowers, whilst the white variety *alba* were in flower. *F. pyrenaica* has pretty grassy foliage, and anon brown and yellow flowers. *F. persica*, having fine glaucous foliage and brown foliage later on. These *Fritillarias* are not so common in gardens as they deserve, and why it is difficult to understand, as they are only of moderate height (1 foot), and are so effective in early summer.

Daffodils are well represented by Sir Watkin, large in size, and beautiful in fringe and colour, tube golden yellow, perianth stout, broad, and pale primrose, very fine. Emperor is more striking, being of such great size and substance, the golden yellow trumpet and delicate primrose perianth rendering it very beautiful. Empress is very fine, indeed one of the noblest, golden yellow trumpet and broad white perianth, finer even than *N. bicolor Horsfieldi*, which last well deserves the appellation of King of the Daffodils, and it certainly is one of the very finest, being so free and early. *N. obvalaris* (Tenby) is one of the freest, and *N. poeticus ornatus* deserves note as the earliest flowering of that section, and being so fine and sweet for cutting. Most of the now very numerous family of Daffodils are represented.

With a look at *Pæonies*, *Irises*, *Delphiniums*, *Potentillas*, *Pyrethrums*, *Phloxes*, &c., that will gladden later on, I came to some *Ivies*. *Osborn's New Silver* is a fine variegated form with medium-sized leaves; *Hedera Helix madeirensis variegata* also has medium-sized leaves and distinct variegation. Of the large-leaved *Irish* (*Hedera helix canariensis*) is far the best, *Hedera digitata* being very distinct, and *rhomboida variegata*, *maculata major*, *palmata*, and *ovata* have all large or medium-sized foliage, the latter being the most close clinging of all *Ivies*. Of the small-leaved sorts *tanrica* and *donairensis* are the best; and of the somewhat larger or medium-sized leaved kinds *hybrida variegata*, *Crippsi*, *chrysocarpa* (yellow-berried), and *himalaica*. *Atropurpurea* is a very neat free-growing kind, with purplish green foliage, very distinct; and *glomerata* has its leaves set thickly on both sides of the stem, which gives it a most singular appearance, even quaint and grotesque.

At the St. Neot's branch *Pelargoniums* for bedding are grown extensively, there being about 30,000, and as a criterion of their value for their particular purpose the number grown of each is suggestive. *Vesuvius* heads the list with 10,000, Henry Jacoby 4000, Master Christine 3000, Whites 3000, West Brighton Gem 2000, Bronze and Gold 5000. *Vesuvius* is far the most popular of scarlets, but West Brighton Gem is dwarfer, more compact growing, freer flowering, and is considered much the best scarlet bedding *Pelargonium*. The foliage is marked by a clear well-defined zone as in *Vesuvius*, and as proved in trial beds (all the kinds as sent out being subjected to this ordeal annually, with a view to an estimate of their merits and consequent selection of the best), is likely to supersede it. John Gibbons, with plain green leaf and somewhat strong habit, is the best of the taller kinds, the flowers being very large, fine form, and great substance. Master Christine holds its own as much the best pink, habit, floriferousness, and general usefulness

placing it first in its class. Henry Jacoby is far ahead of all the crimsons, it being so free and fine in form as to excel all others for bedding purposes, and as a pot plant, especially for winter flowering, is unrivalled. Its colour is so bright and shining as to render it particularly attractive and telling. Of Whites as a bedder White Perfection is considered the best. Of varieties for pots the best were Corsair, orange scarlet; David Thomson, crimson, white eye; Dr. Orton, deep crimson; The Shah, crimson scarlet; Hettie, rose madder; General Roberts, pale salmon; Mrs. Taylor, white, salmon centre; Acme, rosy salmon, edged white; Lady Sheffield, lilac pink; Sophie Birkin, salmon; White Clipper, and Niphetos, pure white, immense trusses, good for winter flowering.

Of bronze *Pelargoniums* Zulu is far the best, the zone being much darker than any other, almost black, habit dwarf and free, the very finest; the effect of this in the mass being very striking, flowers salmon. Black Douglas is the next best, the flowers light salmon. Maréchal MacMahon still unsurpassed as a bedder, broad zone and very bright, habit excellent. Dragon has a chestnut zone and light salmon flowers, habit dwarf and free. Beauty of Calderdale is still a favourite in the light bronze, and is free, even strong in growth. Of gold, Crystal Palace Gem is most in repute. *Calceolarias* are grown by the ten thousand; the best yellow is Golden Gem, best dark bronze Ion, and yellow and brown Sparkler.

*Alternantheras*, judging by the quantity grown, show no diminution of the popularity of carpet bedding. The collection of these is very rich. *A. versicolor grandis* is the strongest grower, foliage dark bronze with rich magenta red marking, very distinct and effective. *A. amœna spectabilis*, brilliant magenta, red, or scarlet, the highest in colour of all the family, and a great acquisition, freer and stronger than *amœna* in habit. The New Golden—viz., *aurea nana*, completely eclipses all others with yellow-coloured foliage. It grows so free and yet so compact as to be quite a gem, its bright golden yellow foliage rendering it most effective, distinct, a decided acquisition. These three are the best of *Alternantheras*. The others grown are *paronychoides*, thick grower, forming round clumps about 4 inches high, brown bronze, tipped red; *paronychoides major*, bronze, orange tips, good; *paronychoides major aurea*, golden yellow, which is kept throughout the season; *magnifica*, a sport from *paronychoides*, but larger and a much higher colour; *amœna*, magenta red; *amœna tricolor*, bright in colour; *amabilis*, orange and red; *amabilis latifolia*, more vigorous grower and richer in colour; *amabilis tricolor*, a vigorous grower with green margin. The three first named are, however, a long way ahead of the others. *Coleus Verschaffelti* is grown extensively for bedding purposes, the demand for which shows no abatement, but is rather an increasing one. *Ageratum Cupid*, a free bloomer, and the dwarfest of all, and Countess of Stair, are grown in quantity, also *Heliotropes*, and many other plants. A fine batch of *Vallota purpurea* is grown in 5-inch pots, it being much in demand for late summer decoration.

At Brampton Messrs. Wood & Ingram have nurseries to the extent of over sixty acres devoted to Roses, fruit trees, Conifers, ornamental flowering trees, and shrubs; and a seed farm of upwards of fifty acres in another district, the whole under excellent management by their respective foremen in the several departments.—G.

## WINTER GARDEN AT THE FIRS, LEE.

THE engraving, from a photograph by Messrs. Perkins & Son, Lee, represents the interior of this structure, the dimensions of which are:—Length, 70 feet; width, 30 feet; depth from centre ridge to path, 18 feet. In form it is a three-quarter span, western aspect, and was erected by Messrs. Weeks & Co. of Chelsea several years ago, for the purpose of growing late Grapes and Oranges. For many years splendid crops of Lady Downe's Grape were grown in this structure. Its use as a vinery was discontinued ten years ago, and Mr. Larking conceived the idea of turning it to its present use, the beds and banks being formed under his direction—that is, the outline of them—his present gardener, Mr. T. W. Sanders, being allowed to make improvements by adapting the beds to the requirements of the plants.

On the left-hand side of the structure is a bank 6 feet deep, divided in the centre by half a dozen stone steps, which lead down from a gravel path, 3 feet wide, that runs along the top of the bank to the path shown in the engraving. The soil forming the bank is supported in position by means of large boulders of Kentish ragstone disposed in a bold informal manner. The outline of the bank consists of this stone, which here and there projects boldly. Nooks and crannies are formed, which vary in size and treatment according to the distance from the foreground and the character of the plants used. The engraving shows about two-thirds of the interior, and in the part not shown are the seats and table, which form the coign of vantage, so to speak, from whence the arrangements of the beds, rocks, and plants are made. The right-hand side arrangement shows a couple of beds, the one in the foreground being smaller than the farther one. A gravel path runs behind these beds and joins the broad one at the far end, and a short gravel path also intersects the two beds leading to another flight of stone steps, which descend into an octagon annexe devoted to tropical plants. A narrow stage runs along the ends and right-hand side, not so much for the purpose of holding plants as to cover the treble rows of hot-water pipes, of which there are over 400 feet. The front of this stage is covered in an irregular manner with virgin cork, which projects sufficiently low to hide the first row of pipes and intercept the straight lines of the remaining ones. In order to further conceal this outline, or at any rate to break the straight lines, Mr. Sanders formed a narrow irregular border, and planted such bold-growing Ferns as *Pteris tremula* and *argyræa*, &c. These grow freely, and by a little tasteful arrangement of the fronds the desired result is obtained. These Ferns have to be supplied copiously with water every day throughout the year to keep them in a healthy condition.

The two large beds are interspersed with stones of considerable size in the upper portions, whilst all round the margins small beds occur



similarly to those on the margin of the opposite bank. The greater the distance away from the eye the larger the stones and the size of the smaller beds. In the arrangement as shown in the photo, the plants increase in size as the distance increases. Beginning with the small bed at the foot of the first mound there is a group of choice Alpine Auriculas and *Primula obconica*, carpeted with *Selaginella Kraussiana*. Growing out of the cleft of a couple of stones is a plant of *Nephrodium molle*, with *Empatorium riparium* to the right, *Le Flambeau Azalea* nestling in between, and *Azalea Fielder's White*, with snowy white bloom, resting against a background of foliage of the Citron Tree, *Acacia dealbata*, *Camellia*, and a large plant of the broad-leaved Myrtle. *Cytisus racemosus*, dwarf Azaleas, *Spiraea japonica*, Roses in pots, *Amaryllis*, *Callas*, *Spiraea*, *Thunbergias*, *Deutzias*, *Boronias*, *Ericas Cavendishiana*, *ventricosa*, *perspicua nana*, and *persoluta*, interspersed with various forms of bold-growing Ferns, occupy the upper portion of this mound, whilst *Primula obconica*, *Lily of the Valley*, &c., fill the little beds at the base.

In the larger and farther mound groups of *P. obconica*, *Cinerarias*,

table. Behind this is a rockwork planted with Ferns, and in the right-hand angle is a plant of *Strelitzia Regina* planted out and quite at home. In the opposite corner is a healthy thriving plant of *Luculia gratissima*, only planted a year ago. This end of the house is built up with brick and not with glass, as at the other end. Large plants of *Bomarea Carderi* and *conferta*, *Habrothamnus Newelli*, *Quisqualis indica*, and *Hoya carnosus* cover this wall attractively. A splendid plant of *Maréchal Niel*, only seven years old, covers two-thirds of the roof, and yields thousands of blooms during the winter and spring. Other creepers, such as *Plumbago capensis*, *Bignonia grandiflora*, *Mandevilla suaveolens*, *Jasminum grandiflorum*, *Gloire de Dijon Rose*, *Lasiandra macrantha* are growing more or less vigorously on this side; whilst on the opposite end *Thunbergia Harrisii* covers space with its foliage in summer, and on the opposite side *Ipomæa Leari*, *Tacsonia Van Volkemi*, *Clematis indivisa lobata*, and *Tecoma jasminoides* are growing vigorously. The majority of these creepers were planted there two years ago. All the potted plants are plunged—that is, the pots are below the surface of the soil. This

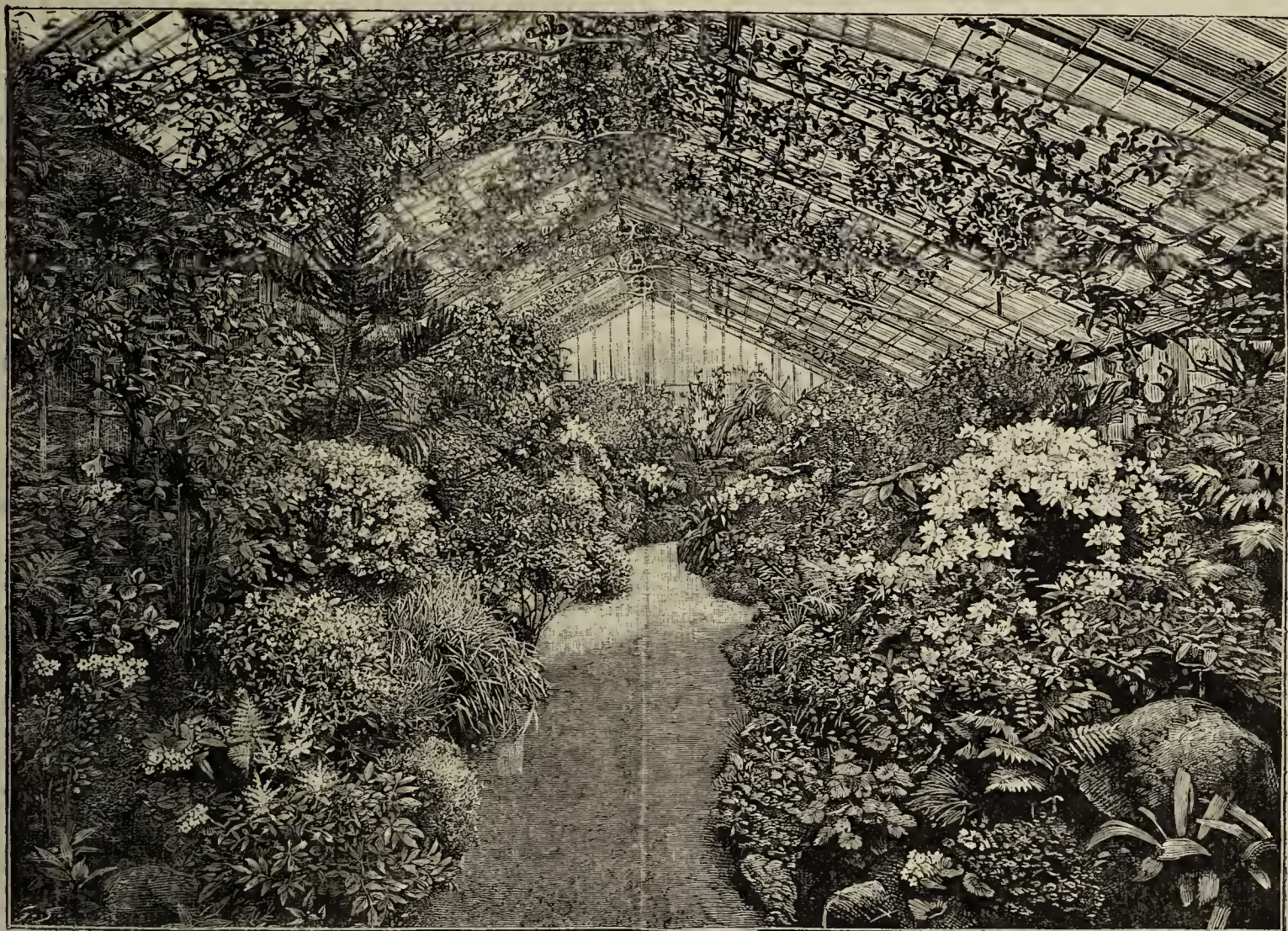


Fig. 69.—MR. LARKINO'S WINTER GARDEN.

*Lily of the Valley*, and small plants of *Zonal Pelargoniums* adorn the base; behind these are a few large boulders of stones, among which are large plants of *Cytisus racemosus*, various coloured Azaleas, Myrtles, *Callas*, *Verbasum*, *Agapanthus umbellatus*, *Acacias*, *Oleanders*, with a huge plant of *Rhododendron ciliatum*, *Camellias*, standard *Heliotrope*, *Rhopala*, &c., for the background, the far end of this mound being crowned with a fine plant of *Kentia Belmoreana*, which stands boldly with its foliage spreading over the group, giving a finish to the picture. The opposite bank has very large plants of *Camellias*, Japanese Medlar, Lemon and Orange trees, *Acacias*, a large standard Azalea (*Fielder's White*), and *Chamærops excelsa* to form the background, the foliage of which rises to the roof, whilst dwarf Azaleas, *Deutzias*, *Spiræas*, *Ericas*, *Cinerarias*, *Primula obconica*, Ferns and other miscellaneous plants furnish the various beds in the bank. The bank on this side of the steps contains a fine plant of *Araucaria Rulei*, large plants of *Acacia Riceana*, *Oleander*, *Rhododendron Princess of Wales*, *Olea fragrans*, *Latania borbonica*, and large specimens of Azaleas as a background, to smaller plants of Azaleas, *Spiræas*, *Deutzias*, *Cinerarias*, *Callas*, *Imantophyllums*, *Solanum capsicastrum*, and Roses in pots. This bank sweeps with a gentle curve, and its lower part contains ledges and beds in which choice flowers are placed.

The part not shown consists of ground space for the chairs and

practice entails trouble and responsibility in the matter of watering, unless assistants are capable and trustworthy, take an interest in their work, and exercise great care in examining the plants every day when watering. Mr. Sanders says—"I am glad to say I have trustworthy young men, and not in one instance have I lost a valuable plant through neglect since I have had charge here; but my employer tells me the death-rate was something frightful previously."

In plunging, care is taken to provide a sound base of brick or slate for the pots to rest on, and also to see that every plant has its roots sufficiently moist before doing so. To this matter Mr. Sanders gives personal attention, and he observes:—"As I rearrange the house from time to time I invite my employer, who is a skilled artist, to point out any defects or suggest any improvements, and this he feels a pleasure in doing, as I do in receiving his just criticism and advice whenever needed. I work in sympathy with his views, and he in return gives me the best encouragement by imparting to me the principles of the beautiful in gardening as admired and studied by him."

In all the arrangements in the winter garden no plants are employed which will not harmonise with each other and the building. Thus, for instance, the Aloe family, or *Dracena*, or *Primula sinensis* type, with rigid foliage, are not admitted therein, because they do not blend with the foliage of Palms and Ferns. Finally, the winter garden is not kept furnished



after May until September. A temperature of 50° is maintained by day in winter. *Isoplepis gracilis*, *Selaginella*, and *Tradescantias* cover the bare ground as much as possible; also the various plants remain in bloom much longer when plunged than when their pots are exposed to the open air.

The octagon contains large plants of *Areca sapida*, *Pritchardia macrocarpa*, *Seaforthia elegans*, *Neottopteris nidus-avis*, *Araucaria excelsa*, &c., and the following creepers planted out—*Combretum purpureum*, *Passifloras*, *Buonapartea quadrangularis*, *Descaisneana*, and *Impératrice Eugénie*, *Aristolochia gigas*, *Hibbertia dentata*, and *Rhodochiton volubile*.

The fernery, parallel with and adjoining the winter garden, contains two large Tree Ferns of note, *Cyathea medullaris*, *Cibotium princeps* and *Scheidel*, *Dicksonia squarrosa*, *D. antarctica*, and *Todea arborea*. *Monstera deliciosa*, *Lasiandra macrantha*, *Stauntonia latifolia*, *Lapageria rosea* *sperba* and *alba*, and many other plants, contributing to the admirable appearance of the house. It is quite as enjoyable as the winter garden, and merits a fuller description than can now be accorded. One thing is clear—both Mr. Larking and his gardener are adepts at the tasteful and picturesque arrangement of plants.

### THE CULTIVATION OF THE STRAWBERRY IN POTS.

IN continuation of the social monthly meetings of the Lee, Lewisham, and Blackheath Horticultural Society, held in the Working Man's Institute, Old Road, Lee, the following brief, practical, and instructive paper on "the Cultivation of the Strawberry in Pots" was read by Mr. Fox, gardener to Mrs. Penn, The Cedars, Lee, before the members at the last meeting on the 26th ult.

After a few preliminary remarks by Mr. Fox, in the course of which he stated that he did not propose to offer any novel ideas on the subject, but rather a few practical hints which might prove of service to those who had had less experience than himself, and which would if practised as he advised, enable them to attain success, he plunged into his subject.

"The first thing of importance," said he, "is the compost, and I know of nothing more suitable for the purpose than good loam with a liberal quantity of well-decayed cow or old hotbed manure, both loam and manure being thoroughly incorporated by frequent turnings. If the compost can be prepared some considerable time before it is required for use it will be all the better. This, however, is not absolutely necessary, indeed is frequently impossible to do, owing to pressure of work, until the moment it is required for use. Then we use 3-inch pots for layering and 6-inch pots for growing and fruiting the plants in. I have tried larger sizes for the latter purpose, but my experience will not justify me in recommending a larger size than 6-inch, which size is in my opinion sufficient for all practical purposes.

"The pots and compost being in readiness, the next task is to secure the runners, which should be done as early as possible—say the last week in June, as the first will, as a general rule, form by far the strongest plants. The following is the simplest mode of layering the runners:—Have the 3-inch pots filled with the compost and carried to the Strawberry bed, and with a pot in one hand and a trowel in the other plunge the former up to the rim by the means of the latter, afterwards placing the young plant on the surface of the soil in the centre of the pot and making it secure by means of a small stone or peg. Strict attention must be paid to keeping the soil moist in the pots during dry weather, so as to encourage the speedy formation of roots. As soon as the young plants are well rooted detach them from the parent plant and remove them to a convenient place for watering.

"The final potting should be commenced as soon as possible after the young plants are removed from the bed, and continued as fast as circumstances will permit until the whole are finished, which should, if possible, be accomplished by the first week in August. The plants will thus have a long season in which to make a good growth and ripen their 'crowns.' Without good plump and well-ripened crowns it is useless to expect to obtain a successful crop of fruit, a fact I would strongly impress upon the attention of those who have had little or no experience on the subject. As the plants are potted they should be stood on a bed of coal ashes in a good open position. Should the sun shine very powerfully on them they must be shaded for a few days until the roots have taken hold of the new soil, after which the shading must be discontinued.

"The plants should be carefully attended to as regards keeping the runners removed as fast as they appear, also weeds, and supplying them with water. The syringe must also be freely used, or that dreaded enemy the red spider will appear and will be found difficult to suppress, thus preventing the plants from making rapid and uninterrupted growth.

"There is another enemy we have been troubled with during the last two years, and which I have never before seen on the Strawberry. It is a small bluish green caterpillar (presumably *Phlanana Vanaria*, the same insect which commits such havoc conjointly with the larva of the magpie moths on the Gooseberry), and attacks the young foliage, stripping it off if not at once got rid of by hand-picking or other means. Next to hand-picking the best remedy I know of is to sprinkle the foliage with white hellebore powder, or make a solution of it and then dip the plants in. I have tried both of the latter remedies, and where, as in our own case, over a thousand plants are grown annually, and time will not permit us to adopt the hand-picking, the last-named methods are the most expeditious.

"The pots may be stood close together at first, but as the plants increase in growth and size more room will be required to enable the foliage to have the full benefit of light and air, and thus become stout and healthy instead of being drawn and sickly-looking. As the pots become full of roots the plants will be greatly benefited by being watered with diluted liquid manure or an occasional sprinkling of Clay's fertiliser. As the

season advances, with its shortening days and less sun, less water will be required.

"We now pass on to the storing of the plants during winter. Although the Strawberry is a thoroughly hardy plant some protection is needed when it is grown in pots to save the latter from being damaged by frost. Moreover, we must not forget that the roots growing round the sides of the pot would also suffer greatly were the plants not to receive some slight protection. Of course opinions differ as to the best modes of storing them for the winter, but I give preference to cold pits or frames where available. As we cannot always command these I have ours plunged in a bed of ashes at the foot of the front wall (outside) of a long range of Peach houses. Lights and wooden shutters are placed over the plants, the lower parts of which rest on empty flower pots, and thus allow a free circulation of air among the plants. There is, it is true, a slight disadvantage in this system, as during very severe weather the plants would be frozen; but even this may be overcome by putting an ample covering of mats or litter on.

"As to the question of the most suitable structures adapted for forcing the Strawberry there can be no doubt as to the superiority of a special house for that purpose, but as my experience does not extend to a special structure I shall confine myself to describing my own practice in forcing on shelves in ordinary fruit houses. I usually take my first plants in when I close the first Peach house, which is generally done in the early part of January, and there they come on gradually with the Peach trees. Fresh supplies are brought in as required, and I always endeavour to get the first supply of fruit ripe by the first week in April, and to maintain thenceforward a constant supply daily. The plants are stood in saucers on the shelves, and until fruit is set are supplied with pure water only. After the fruit has begun to swell we commence to treat the plants liberally with liquid manure or Clay's fertiliser, watering them twice a day to assist the fruit in swelling rapidly. Great care is now necessary in seeing that the plants do not suffer from want of water, otherwise the fruit will fail to attain a large size or a good flavour. As soon as the fruit has reached the ripening stage the plants are lifted out of the saucers, and no more water is given than is requisite to prevent the leaves from flagging. On hot sunny days it is sometimes necessary to give a little more water, because the fruit will become heated and lose much of its flavour if allowed to get too dry at the roots. This, however, is a question requiring the exercise of a little judgment. The flavour is a most important point, for no matter how large in size or rich in colour the forced fruits of Strawberries may be, if it lacks flavour it will not be appreciated.

"The varieties we grow are *Vicomtesse Héricart de Thury* and *British Queen*. The first named is our principal one, and a very fine variety it is."

An interesting discussion followed the reading of the paper, each speaker taking up parts of the subject which had been left unsaid by the other. One member pointed out the value of placing thin turves on the shelves on which to rest the pots as being far superior to saucers. The roots would penetrate through the bottom of the pot into the turves, and thus receive an additional support in the shape of a cool moist medium for its roots, and not only this, the turves would receive the surplus manurial elements which often passed through the soil and out of the pot without losing much of its value, and consequently was wasted.

The same speaker also advocated the employment of crushed bones instead of potsherds, except one piece over the hole for acting as drainage in the growing pots. This he had practised with great success, both plants and fruit being remarkably fine. His practice was to place about 1½ inch of the crushed bones in the 6-inch pot, and as a rule before many weeks a mass of roots had taken possession of the boxes. Reference were also made by him to the early history of Strawberry forcing, stating on the authority of Switzer and other writers that Strawberries were forced on dung beds as early as the sixteenth century. Daines Barrington, an old writer, states that King Charles II. had forced Strawberries and ice creams at a grand dinner in the month of April. The mode of preparing and forcing the plants was, however, not a very simple one judging from the following extract taken from Hill's "Eden," published in the early part of the last century.

"There is one kind that succeeds better than the others. This is the scarlet Strawberry. It will be proper to mix three or four plants of the great Chili Strawberry among them. These with good management will succeed, and their fruit, which is as big as a pullet's egg, will make a fine figure among the rest in the dessert. Let as many middle-siz'd pots be provided as will stand in a moderate hotbed, bring in some dry earth from the turf in a rich pasture, and shake in among it a little wood soot and some fat marle; or, in want of that, a little soft chalk. With this, when well mixed, cover the bottom of the pots 3 inches deep. Let a hotbed be got ready, and let care be taken that it has an equal and moderate heat. Let the gardener take the opportunity of the first mild day, when the earth is loosened from the preceding frosts. To take up the plants in this manner he must mark the strongest roots in his scarlet Strawberry beds, which he will easily distinguish at this season if they have been managed as we directed. The pots must be brought to the place, and these plants taken up by cutting in all round them. If there be any mix'd roots let them be trimm'd off, and let the plant with its ball be plac'd upright in the pot; then fill up with the compost and draw a little of it about the head of the plant." This writer after advising the pots to be plunged up to the rim in mould on the hotbed, goes on to say, "In tolerable weather let them have air, and let them be water'd often a little at a time. This will bring them forward very fast, and the heat of the bed being kept up by fresh dung at the sides the fruit will ripen in quantity and be tolerably well tasted. The Chili pots will require more water than the others, and they should be plac'd at the corners of the bed."

The foregoing is copied verbatim from the January calendar in the



above-named work. A great stride has been made in forcing Strawberry since then. Mr. Pavey spoke at great length on the different methods of storing Strawberry plants during the winter. The particular methods to be adopted should, he thought, be regulated by local circumstances, and also on the sometimes practised mode of securing late Strawberries by planting the plants out in prepared beds in frames. Other members joined the discussion, corroborating for the most part the remarks which fell from Mr. Fox and succeeding speakers. The meeting closed with a hearty and unanimous vote of thanks to Mr. Fox for his able paper. It is a great pity these social meetings are not more generally adopted than they are. Such meetings are not only valuable from an instructive point of view, but are also the means of bringing men together, uniting their interests. Mr. S. Reece, a well-known local exhibitor of plants, will contribute the next paper on the Cultivation of Hardwooded Heaths.—T. W. S.

### FLOWER GARDENING.

IN recent years there has been a great decrease in the fancy for sensational flower beds, borders, and parterres; the stiff formality of the Dutch styles gave place long before I can remember to Italian and French styles, the chief recommendations of which appear to consist of intricacy in design, with beds and borders of brilliant flowers. The most that can be advanced in their favour is their brilliancy in bright weather from July to September, the display afforded for so brief a period being gratifying to townsmen. There is nothing in beds of such flowers arranged with a view to effect but what can be taken in at a glance, and yet we are constrained to admit that most garden visitors go expressly to see, not study, flowers, and unless there is something brilliant to attract, something intricate or elaborate in design to rivet attention, and something novel in arrangement to awaken interest, there is a lack of appreciation.

For public gardens, promenades, and parks there is no gainsaying the suitability of the bedding-out system, or the geometrical style of laying out with plants that afford a display at the time when the parks are most frequented—namely, the summer season, and I make no question of the bedding system holding its own against any mixed style of planting, for whatever may be advanced against the bareness of the beds in winter that is of little moment, as such places are then altogether neglected. Beds of shrubs are at best extremely tame or uninviting to the town denizen. It is different with spring-flowering plants and bulbs. The spring and early summer display is very much appreciated, and effort in this direction is to be encouraged, as beds of spring flowers through the variety of their forms, their varied hues, and the succession in which they are produced, are interesting and instructive. Beds of Snowdrops, Winter Aconites, Scillas, Hepaticas, and Crocuses all admire. The Hellebores show to great advantage in such company; Primulas, Violets, with Arabis, Doronicums, Wallflowers, Daffodils, Tulips, Pansies and Violas, Daisies, Silenes, and Forget-me-nots all assist in the display. In summer we have our conservatories outdoors and bright carpet beds rich in colour and harmony. In the sub-tropical garden we have Musas, Cannas, Eucalyptuses, with many others from all parts of the world. For public parks and gardens we want broad walks, open and breezy spaces gay with flowers, broad expanses of turf, trees that blend in the distance into woodland scenery, a lake, and ample space for recreation.

It is with regard to private gardens, however, that I wish more particularly to discuss the bedding-out system. I am old enough to remember the flower borders of over forty years ago, which are now referred to as the old-fashioned style of gardening. At the garden where I commenced my career there was a large mansion with north and south frontages—the south, the carriage or drive front, on which there were expanses of sloping lawn, a view over meadows, and a tidal river to the richly wooded country beyond. The lawn was flanked with noble trees, which acted as shelter from the west winds that came sweeping over a stretch of flat somewhat treeless land following the course of the river, whilst on the lawn itself were specimens of noble Cedars, Magnolias, and groups of shrubs both evergreen and deciduous. The centre was of course an open space, and immediately under the windows were the exotics, which gave a pleasing aspect from the windows. There were no formal shapes, and there were no flowers except those in semi-wildness among the shrubs or beneath the trees, as Primroses, Winter Aconites, Snowdrops, and Daffodils, with Periwinkles, &c. The north front was simply a broad expanse of lawn of ten acres, bounded on the west by plantations and shrubberies that with walks offered access, and at the same time shut off the usual adjuncts of mansions, as stables, &c., and on the confines of which were situated the dairy. Not a tree stood on this expanse of turf, a broad walk ran parallel with the mansion across it with a similar one from it to the entrance of the mansion on that side. It was in fact the foreground to the park scenery beyond with its deer and trees of Oak in noble proportions. The ground adjoining the west of the mansion was occupied by a belt of trees that concealed the offices of the mansion, and on the side were the kitchen gardens and orchard, nearly half a mile distant, there were the then customary Pine stoves, vineries, Peach houses, Cucumber and Melon pits and frames, tan and stable dung being used for bottom heat, with hot air in flues for the top heat, there being two furnaces to each Pine stove, and when fully at work there were twenty-six fires to attend to of an evening, which gave me a perfect recollection of the good old times, as we now have more work done by one boiler than was then done by the twenty-six furnaces, and with greater certainty of result, as the flues were very liable to be overheated and emit sulphury vapour.

Adjoining the drawing room to the east of the mansion was the con-

servatory some 90 feet long and about 24 feet wide, with a curvilinear roof, the height being corresponding to the width. It was not all wood in mullions, and opaque from massive meaningless cornices, but it was light, the roof being of copper sashbar, and the astragals were light in proportion; and it were heated with hot-water pipes, having taken place of a building not very different from the mansion in respect of architecture and means of admitting light. I need not tell what this was like, as there are only too many such conservatories now existing. Beyond this eastward went a wood, through which the drive passed, and in the wood were walks, here and there stretches of turf or open spaces where bracken, wild Roses, with wild flowers, grew in profusion. In front of this wood to the south were the flower garden, and as the wood curved inwards, or to the south, it was sheltered from northern and eastern winds, whilst west winds were checked by the trees on the south front before alluded to. This enclosure was some thirteen acres in extent, although it seemed very much less, as it was profusely decorated with flowering trees, shrubs, and plants that caught the eye in every direction, being a rich mass of floral beauty in the foreground, heightening in interest and beauty as we examined it; now a mass of China Roses with climbing varieties on arches, blended with Honeysuckle, the next being the brilliant scarlet Tom Thumb Pelargoniums with yellow Calceolarias. There were beds of Cape Pelargoniums and Fuchsias, of tall Lobelias, Verbenas, Heliotropes, and Petunias, masses of Musk, and Night-scented Stocks, there being few variegated Pelargoniums, the best yellow being Golden Chain. There was a rosery in the flower garden almost exclusively formed of summer Roses, with pillars and arches loaded in their season with clusters of fragrant flowers. A wide border, a mixed mass of plants—Hollyhocks at the back, its Dahlias, Larkspurs, in declining height to the front with its Pinks and Carnations, Ten-week Stocks, and Asters, with other annuals both half and full hardy, Sweet and Everlasting Peas, something of almost everything that made a show and was useful for filling the flower basket, grand masses of Anemones for early summer and Gladioli for summer and autumn. There were water plants, a lake-like stream running through the ground, having its Weeping Willows and Birch on the margin; rock garden, so far as meagreness of rock could make it, with its rootery made to serve in grotto-like form for Ferns, bowers enshrouded in Clematis, and other winding climbers, and in a secluded spot were cherished varieties from Dean Herbert's garden at Spofforth, and which were mostly bulbs from the Cape of Good Hope or hybrids.

There were always flowers to be had for at least nine months in the year, but I must briefly sketch something else, and which unfortunately we do not now find in one garden often. It was a piece of ground shut off by low-growing shrubs, which whilst sheltering from winds were open, sunny, and this was devoted to florist's flowers—Roses, Pinks, Carnations, Picotees, Hollyhocks, Dahlias, Pansies, Polyantheses, Auriculas, Anemones, Ranunculuses, and Tulips. Anyway, there were besides beds of these a house for Auriculas, pits, frames, and handlights for propagation, with cool quarters for such as needed it. Here everything had name, and by such seedlings were judged, and it was astonishing how few could hold up their heads with the named varieties, the quantity of seedlings not exactly up to the mark coming in admirably in the mixed border, where they made a display that everybody admired.

Whilst I was there we got into the custom of wintering Pelargoniums in vineries, making the old gardener use sundry expletives, yet the system grew, and he died before he had seen the waning of the mixed system. The massing system has been attributed to several, but there is not the least doubt that it originated with Loudon, as we find it much advocated in both arboricultural and floricultural articles by him in the "Gardener's Magazine," and John Cae certainly put the system in practice so far back as 1835. Of all its advocates none brought it so much into prominence as Donald Beaton in the pages of the *Cottage Gardener*, it not being until 1850 that the system had obtained a hold of the gardening mind demanding particular note. It was not enough to relegate perennials to mixed borders, but these last must be cleared to make way for new fashions; ribbons of flowers or foliage as varied in hues as those of the rainbow, even beds of choice plants must be relegated to the kitchen garden, and these were ousted by the tawdry Pelargoniums and gawky Calceolarias; even Vine horders must be made contributory to the colour hunger. This was not enough, fresh beds must be cut on every available piece of lawn within view of the principal windows, until there were almost as much hed or border as lawn. It was a conglomeration of flowers of the brightest and most transitory character, as a spell of wet weather rendered the Pelargoniums petalless, and Calceolarias dropped their flowers, everything being forlorn except foliage plants that seemed to heighten in effect in murky weather. This, with the change of glare and neglect of tone, gave rise to the carpet bedding system, which speedily became popular.

That the bedding system did not entirely obliterate every sentiment of the old-fashioned style of gardening, ample evidence was given in the remarks made from time to time by those attached thereto. Beds have now taken their proper place in gardens by being brought together into some position where they form an harmonious whole in distinct feature, which everyone must admit is a great gain on the disconnected and isolated bed placing on lawns without any regard to the production of a whole, the removal of any one of its parts would disarrange the whole. This the bedding system has done for us in a manner highly creditable to landscape art. It is vain to talk of the bedding system being exploded, it only seems to be finding its proper level and fit place in gardens, which is in the geometrical and symmetrical arrangements of beds with a view to effect at stated seasons, and for which materials are forthcoming



in number and variety equal to the emergency, and that without exerting any great strain upon the resources of the establishments.

There has been, of course, a considerable relapse in the bedding-out system of late years, and a return made to the better, because more useful, method of filling borders with herbaceous plants and shrubs, that, from the variety of plants, available flowers in every month of the twelve can be had when the weather is mild. It is useless to attribute this waning of the bedding system to a change of taste, for the taste for show is just as strong as ever, with those that are not liable to be taxed with its cost. What we want, and are coming to, is a less number of beds better filled. It is the taste for the beautiful and sweet that has been given by the unobtrusive workers of floricultural art, to whom the change is due. Roses, Carnations, Pyrethrums, and plants of that kind are taking their proper place in gardens, and in the appreciation given them by cultured minds in homes of taste, not the least of the causes telling on the bedding system being the curtailment of establishments through reduced means of maintenance.—G. ABBEY.

## COLONIAL AND INDIAN EXHIBITION.

### THE VEGETABLE PRODUCTS OF INDIA.

THE general extent and interest of the Exhibition at South Kensington were referred to last week, but as the vegetable products of the Colonies form such an important part of the contributions they merit a more detailed description, which it is our intention to accord them in the following notes.

First in importance, and the first also that a visitor sees when entering the Exhibition by either of the gates nearest to the South Kensington station, are the Indian courts and galleries. In these are displayed an exceedingly choice collection of works of art, and with them are associated samples of the chief vegetable products, dried or otherwise preserved, represented by models as in the case of some of the fruits and vegetables, or by coloured illustrations as with some of the rare or most remarkable plants. It is unfortunate, however, that there are no living representations of the rich tropical Indian flora beyond what are afforded by the Orchids in the St. Alban's House. These, it is true, are numerous and beautiful, but our stoves and other houses are embellished by so many handsome plants from the East Indies, that a house devoted to them would have constituted a valuable addition to the horticultural attractions. The Himalayan Rhododendrons alone would have furnished a house admirably, but probably some descendants of at least one Indian Rhododendron, *R. arboreum*, will be found amongst those out of doors that will shortly be flowering in the beds facing the fountains. Numerous and varied as are the ornamental plants from India, those distinguished for their uses are also abundant, and some of these are of much importance to us, and are in various forms imported to the country in large quantities. It is strange, however, that many of the plants cultivated extensively for exportation are not natives of the country, though there are plenty of plants of economic value indigenous to India, but the majority of these are used by the natives for various medicinal purposes. A glance at one of the Indian "shops" in the Exhibition will illustrate this—namely, the druggist's or herbalist's, in which great numbers of dried herbs are shown, each supposed to possess some marvellous properties, and some undoubtedly are useful in disorders peculiar to the country. The other "shops" are also interesting, especially the fruiterer's with the innumerable tropical fruits, amongst which the Bananas and members of the Gourd family predominate, and the grain-sellers' with a variety of millets and lentils so largely employed there as food. The models of fruit and vegetables from the Botanic Garden, Saharnpore, are also worthy of attention, several being shown with which we are familiar in the London markets, such as the Litchi; those seldom used here, but in much esteem where they are produced, being the Mango and Guava, while the Pine Apple and Banana, which we obtain from several other sources, are included amongst these models.

The Forest trophy, representing 3000 specimens of useful timbers, and the Bamboo trophy are interesting features in these courts. The latter is constructed in the artistic manner that characterises so much of the native work, two staircases having been formed with a platform at the top, the steps formed of strips of Bamboo arranged in a great number of geometrical designs, like the inlaid work of cabinet makers. It is said that no less than thirty species of Bambusa have been utilised in the construction of this trophy, and the stems employed vary in size, from the size of straws to giants nearly a foot in diameter. The uses of the Bamboo are very numerous, especially in the construction of the light airy dwellings and furniture of tropical India; but there is another plant which is also remarkable for the multiplicity of its uses, the Cocoa-nut Palm, *Cocos nucifera*, of which a series of objects is shown near the Bamboos. About eighty specimens are exhibited, but these might be greatly multiplied, for the bare enumeration of the uses to which the different portions of the plant are applied would fill a small volume. Like the Bamboo the stems are employed for dwellings and furniture of many kinds, but in this case we have a nutritious fruit that is also borne in considerable quantities, the covering of which yields an important fibre, the leaves are used for articles of dress, and in a young state for food. It has been truly remarked that it is "one of the richest of Nature's gifts to man, for there is no part of the plant that is not adapted to human necessities," and to the inhabitants of many tropical countries besides India the Cocoa-nut Palm is indispensable.

Of the plants the products of which are mainly sent to Great Britain the Cinchona merits a special note, as the culture has increased considerably in recent years, owing largely to the efforts of the home authorities, amongst whom must be mentioned those at the Royal Gardens, Kew,

As soon as it was found that the South American Bark-yielding trees would succeed in the elevated districts of India, especially in the Himalayan region, large plantations were formed by the Government at Darjeeling and elsewhere with very encouraging results, and the supply of Bark from India has been increasing for some time, exclusive of that consumed in the country where its febrifugal properties can be so fully appreciated. There are numerous kinds of Bark, but they are grouped as follows in the Kew collection:—Pale Cinchona or Crown Bark, *Cinchona officinalis*, Yellow Cinchona or Calisaya Bark, *Cinchona Calisaya* (fig. 70), and Red Cinchona Bark, *Cinchona succirubra*. Our non-botanical readers may not be aware that the family to which the Cinchona belongs also includes the Coffee, Ipecacuanha, and Madder plants, as well as some



Fig. 70.—*Cinchona Calisaya*.

of the most ornamental plants cultivated in our houses, such as the Gardenia, the Rondeletia, and others. The properties of the Cinchona depend chiefly upon the alkaloid quinine, which is present in the bark, and found to be a valuable tonic.

(To be continued.)

## ROYAL HORTICULTURAL SOCIETY.—MAY 11TH.

A VARIED and handsome display was provided in the conservatory at South Kensington on Tuesday, the stages on each side of the building being filled with Roses, hardy flowers, Orchids, Rhododendrons, and other exhibits. The specialties of the occasion were, however, Messrs. W. Paul & Son's superb Roses, Mr. T. S. Ware's interesting hardy flowers and Tree Pæonies, Messrs. Lane & Sons' Rhododendrons, and the Colonial exhibits of Apples and other fruits.

FRUIT COMMITTEE.—Present: T. Francis Rivers, Esq., in the chair, and Messrs. John E. Lane, Wm. Denning, J. Ellam, W. Warren, G. T. Miles, G. Norman, Arthur W. Sutton, John Burnett, F. Mason, F. J. Saltmarsh, Philip Crowley, R. D. Blackmore, T. B. Haywood, Harrison Weir, George Bunyard, and Chas. Silverlock. The collections of Apples from Australia were the principal exhibits before this Committee. A collection of Apples was shown by Mr. James Lang, Harcourt, near Castlemaine, Victoria, Australia, sent by request of Mr. John Carson, Melbourne, to the care of G. F. Wilson, Esq. They had been grown in a soil of decomposed granite, and had been packed in soft paper and cotton wool. The fruits were large, fresh, solid, and mostly of fine flavour. Northern Spy was highly commended. Reinette du Canada, very large, was commended, as also was Perfection, a bright red Apple of medium size, very firm, and good flavour. Other notable varieties were Scarlet Nonpareil, Worcester Pearmain, Dumelow's Seedling, Merritt's Pearmain, London Pippin, and Cleopatra. J. T. Pascoe, Esq., sent two dishes of South Australian Apples, Strawberry Pippins, and Cleopatra, the latter being commended. The Hon. R. D. Ross, Highercombe, South Australia, and R. Devonport, Esq., also sent dishes of Apples, one variety named Mobbs' Royal, a large green Apple, being commended. G. Quick, Esq., had some fine Quinces, Mrs. Holbrook fine fruits of Napoleon Pears, which were commended, and T. Hardy, Esq., Adelaide, had samples of Brande's Almonds. A collection of dried fruits was shown by Lady Davenport, Beaumont, Adelaide, Australia, comprising Currants, Moor Park Apricots, Raisins, Prunes, Sultanias, Napoleon Pears, Gravenstein Apples, and Reine Claude Plums. They were all very clean excellent samples, highly commended for their excellent quality. The Committee requested that the dried Apples and Pears should be stewed and exhibited at the next meeting. A collection of Apples from Canada was also shown by the Canadian Commissioner, representing some highly coloured varieties, Ben Davis, Northern Spy, Phoenix, Seek no Further, King of Tomkin's County, Canada Red being some of the best. It was proposed that Knightian medals be placed at the disposal of the Commissioners for Australia and Canada and Mr. Lang of Victoria.

Mr. W. Divers, Wierton Place, near Maidstone, sent thirteen dishes of Apples and Pears which had been "kept since gathered in a cold dark room where the temperature often fell considerably below freezing point in the winter," but the samples of King of the Pippins, Hanwell Souring, Graham's Russet, and Loddington Apples were fresh and good, the Pears Catillac and Chaumontel being moderately good. The Veitch Memorial prize, for a collection of forced salad plants not less than ten distinct kinds, was won by Mr. G. Bolas, gardener to H. Chandos Pole Gell, Esq.



Hopton Hall, Wirksworth, Derby, who had examples of Chicory, Whitloof, Chervil, Tarragon, Dandelion, Celery, Beet, Chives, Onions, Cucumbers, Radishes, Rampion, Mustard, Cress, and Sorrel.

**FLORAL COMMITTEE.**—Present: G. F. Wilson, Esq., in the chair, and Messrs. J. Douglas, H. Bennett, W. Bealby, Amos Perry, H. Herbst, W. Wilks, J. Walker, Shirley Hibberd, James Hodson, G. Duffield, G. Paul, R. Dean, William Holmes, H. Ballantine, John Dominy, H. M. Pollett, James O'Brien, Harry Turner, Thos. Baines, H. Cannell, A. F. Lendy, W. B. Kellock, and E. Hill.

Messrs. J. Veitch & Sons, Chelsea, contributed several plants, a basket of the dwarf *Rubus arcticus*, with bright rose-tinted flowers being very pleasing. (Vote of thanks.) *Philadelphus microphyllus*, with small leaves and abundant small white flowers, was well shown. (Vote of thanks.) Also the pale yellow *Sparganium præcox*; the Bird Cherry, *Cerasus Padus*; two pretty *Gloxinias*, named respectively *Diana* (purple edged white) and *Rosine* (scarlet edged white), and an elegant Fern, *Pteris Bausei*. Messrs. Barr & Son, King Street, Covent Garden, had an attractive group of hardy flowers, *Daffodils*, *Irises*, *Tulips*, *Trilliums*, and *Ixias* constituting the chief features of the collection. Messrs. Paul & Son, Cheshunt, had two fine plants of *Rhododendrons*, *Lady Alice Fitzwilliam* bearing some dozens of its fine white fragrant flowers, R. Edgworthi, and a slightly rose-tinted variety of R. Fortunei named Mrs. Charles Butler, were similarly well shown. A plant of the striped H.P. Rose *Pride of Reigate* had two good blooms, bright in colour, well marked, and substantial. Half a dozen plants of the new Tea Rose *Sunset*, which we have previously noted, were flowering freely, and a basket of hardy plants, including *Primulas*, *Trilliums*, and *Calthas*, was also interesting. (Bronze Banksian medal.)

G. F. Wilson, Esq., Weybridge, exhibited a plant of *Potentilla argrophylla*, with silvery leaves and large bright yellow flowers. (Vote of thanks.) Mr. F. Bridger, Penshurst Place, Penshurst, showed a plant of *Zygopetalum Gautieri* with five spikes of flowers, the lip deeply tinged with purple. The plant was very strong and growing upon a stem of a Tree Fern. He also had a plant of *Dendrobium thyrsiforme* like the variety *Walkerianum*, bearing a very long raceme of white and gold flowers. H. Voss, Esq., De Montfort House, Streatham, had a plant of *Odontoglossum Pescatorei*, a charming variety with the lip beautifully spotted with purple. (Vote of thanks.) G. Charlesworth, Esq., Heaton, near Bradford (gardener, Mr. R. Eichel), showed *Cattleya Gaskelliana alba*, bearing one flower, white with a tinge of yellow in the lip. (Vote of thanks.) Mr. Kimpton, Smeeth Paddock, Ashford, sent several *Pelargonium* sports with strangely tinted leaves. Messrs. J. R. Pearson & Son, Chilwell Nurseries, exhibited several good scarlet *Zonal Pelargoniums*, Mrs. David Saunders and W. Bealby being very handsome. Mr. C. Orchard, Combe Warren, Kingston-on-Thames, had a plant of double *Cineraria* named Mrs. John Galsworthy, white edged with pale crimson, very curious and distinct.

Baron F. de Rothschild, Waddesdon, Aylesbury (gardener, Mr. A. Bradshaw), exhibited a specimen of *Lælia purpurata* with eight spikes and twenty-four fine flowers. The plant was in excellent condition, healthy, and robust. (Vote of thanks.) Mr. G. Geggie, Bury, sent several pretty varieties of *Primula Sieboldi*, rose and crimson coloured. H. M. Pollett, Esq., Farnside, Bickley, Kent, contributed a small group of *Odontoglossums*, choice varieties of *Andersonianum*, *Wilkeanum*, *guttatum*, *prænitens*, *scepterum*, and *citrosum*. (Bronze Banksian medal.) The New Plant and Bulb Company, Colchester, sent several *Tulips*, *Griegi* being the most notable for the bright scarlet colour with black spots at the centre. (Vote of thanks.) Mr. J. E. Bonny, 83, Downs Park Road, Hackney Downs, showed four plants of the diminutive *Phalenopsis Parishii* with small spikes of white and purple flowers. Mrs. F. Bennett, Tulse Hill House, Upper Tulse Hill (gardener, Mr. Howes), was awarded a cultural commendation for a specimen of *Dendrobium speciosum* with a dozen long spikes of bright yellow flowers.

Messrs. William Paul & Son, Waltham Cross, were awarded a silver-gilt Banksian medal for a grand collection of *Roses*, about fifty specimens being shown, all healthy, freely flowered plants. Some of the most notable were *Madame Montet*, bright pink; *Glory of Cheshunt*, very dark crimson; *Crown Prince*, still deeper; *Etoile de Lyon* (Tea) bright yellow; *Duke of Wellington*, brilliant crimson; *Queen of Queens*, *Violette Bouyer*, and *Little Gem*, a pretty Moss Rose of bright pink colour; sprays of the *White Banksian Rose*, loaded with small white flowers. A dozen boxes of cut flowers was also shown, comprising a great number of handsome blooms, *Maréchal Niel* being exceedingly fine. Messrs. T. S. Ware, Tottenham, contributed a superb group of hardy flowers, *Primulas* of the *Sieboldi* group, *Daffodils*, *Trilliums*, *Irises*, and *Pæonies* being especially abundant. The *Pæonies* were very much admired, the varieties being rose, crimson, and of paler tints (silver-gilt Banksian medal). Messrs. H. Cannell & Sons, Swanley, Kent, showed some handsome blooms of the yellow *Carnation Pride of Penshurst*. Messrs. Wills & Sagar, Onslow Crescent, were awarded a cultural commendation for two magnificent plants of *Erica Cavendishiana* over 2 feet in diameter, and loaded with flowers. Mr. J. Walker, Thame, Oxon, had a basket of *Gentiana acaulis*, brilliant blue. Mr. W. Rumsey, Waltham Cross, contributed a large group of dwarf and standard *Roses*, profusely flowered, and a number of boxes of cut flowers were also shown (bronze Banksian medal). Messrs. H. Lane & Son, Berkhamstead, exhibited an extensive collection of *Rhododendrons* and *Azaleas* of numerous varieties (silver-gilt Banksian medal).

#### CERTIFICATED PLANTS.

First-class certificates were awarded for the following plants:—

*Phoenix hybrida* (J. Veitch & Sons).—A pinnate-leaved Palm, of graceful habit, the pinnæ one-quarter to half an inch broad, 8 to 10 inches long. The leaves on the plant shown were about a foot long, but they will no doubt come larger.

*Pæony Moulan Reine Elizabeth* (T. S. Ware).—A large full-flowered variety of a bright reddish rose tint, distinct and showy.

*Adonis pyrenaica* (T. S. Ware).—A variety of similar habit to *A. vernalis*, but with much larger brighter yellow flowers, the petals much broader.

#### SCIENTIFIC COMMITTEE.

Sir J. D. Hooker in the chair.

*Gladiolus tristis*.—Mr. Ridley ascertained this to be the species of *Gladiolus* brought to the last meeting.

*Beetroot*.—Mr. Ridley examined the specimen brought to the last meeting, and believed that a seed had originally fallen into a hole in the stone; it had then grown through it; but that a stone had subsequently been pressed into it from above and so cut off the leaves.

*Passiflora diseased*.—Mr. Michael gave the following report upon the specimen sent to the last meeting:—

"I have to report that I have examined the large outgrowth from the stem of *Passiflora edulis lancifolia*, forwarded by Mr. W. Speed of Penrhyn Castle, with a view to ascertain whether it was caused by the attacks of *Phytopti*. It was in a very unfavourable state for such examination, as to make that reliable the object should be forwarded when the mischief is commencing, not when it is complete, and the conditions of the whole thing so greatly changed. The object should be taken in the earliest stage, cut with a portion of the healthy stalk, and immediately it is cut put in a sponge bag, or in gutta-percha tissue or oil-silk, and tied up so tightly that neither *Acari* nor moisture can escape; or a tin box will do equally well if closely fastened up, and it should be forwarded at once.

"I examined the outgrowth and other parts of the plant as well as the conditions permitted, and failed to find any trace whatever of *Phytopti*; neither living specimens, nor any cast skins nor remains were to be found, even under a tolerably high power of the microscope. The outgrowth was near to a leaf bud, which, so far, would somewhat favour the idea of *Phytoptus* action, but there was not any indication that it arose from the bud itself, or from leaves in any stage which would be expected to be probably present if the view were correct.

"On the other hand, the whole outgrowth, both internally and externally, was absolutely swarming with myriads of *Acari* of the genus *Glyciphagus*, which occupied every part of it, and were in all stages, and had penetrated from the outgrowth into the portion of the stem itself, lying immediately below it, where sections of the wood revealed them in considerable numbers. There was not any sign of living creatures of any kind except the *Glyciphagi* and a few *Gamasids* which were preying upon them.

"The *Glyciphagi* would not be likely to be the first cause of mischief, but they might possibly, and even very probably, be instrumental in turning a slight and unimportant injury into a serious one. They are creatures found principally on dried fruits, seeds, flowers, and some dried animal products, as cantharides, &c., and are universally distributed and extremely abundant, doing great damage to such products as those above-named, but they do not habitually attack uninjured living plants. At the point where the outgrowth arose from the stem there was decided evidence of some injury having been sustained, although not an important one, and I could not in the present condition of the specimen say from what cause.

"The conclusion I am inclined to draw is that probably the bark received some slight injury, possibly from insects or *acari*, but more probably from other causes; that an exudation of sap and matter containing more or less sugar or gum occurred and happened to attract the *Glyciphagi*, who would feed eagerly upon it and breed with immense rapidity, and pursuing their search for it into the wood itself, would give rise to an irritated condition which might well cause an abnormal flow of sap and such outgrowths as the present. It is, however, quite possible that the outgrowth may have arisen from some other cause, and that the *Glyciphagi* had only come when it was dried up. It would require to have the outgrowth in an earlier stage to be certain about this. There were not any *Glyciphagi* on the other portions of the stem where the bark was uninjured.

"Finally, I would suggest that an application of carbolic acid, sulphur, or better still, tar, in an early stage of the mischief, might probably stop it, if, as I surmise, it be aggravated by the *Glyciphagus*."

*Pansy Dimorphic*.—Dr. Masters showed two blossoms, one of a dark purple, the other smaller and white, with a central purple spot, both being from the same plants. The latter appeared to be a reversion to some earlier form of *Heartease*.

*Laburnum hypertrophied*.—Mr. W. G. Smith remarked upon a specimen in which a terminal shoot had been injured by frost, in consequence of which a lateral branch had become hypertrophied. A large number of trees were similarly affected.

*Coin with Rhizomorpha*.—Mr. Smith exhibited a specimen of *Cocoa-nut* fibre matted together by a remarkable form of fungus. The *Rhizomorpha* consisted of silk-like threads of a dark brown colour and of an almost metallic lustre. Mr. Murray suggested that it was probably some species of *Agaricus*. It was found to damage the commodity very materially.

*Ivies Injured and Uninjured by Frost*.—Professor Church remarked that of six varieties of *Ivy* growing on a north wall only one (*Azorica*) was at all injured during the late severe weather.

*Deutzia gracilis*.—Dr. Lowe exhibited two specimens from the same plant, one with ordinary flowers, the other with small greenish—or so-called "blind" flowers. They were referred to Dr. Masters and Rev. G. Henslow for examination and report.

*Ergot of Wheat*.—Mr. Plowright sent specimens for exhibition. They were given to Mr. Murray for cultivation. They are mostly shorter and thicker than the common form from Rye, and are therefore suggestive of a different variety or species of *cordyceps*.

*Podisoma Juniperi*, cultivation of, on the *Juniper*.—The following communication was received from Mr. Plowright:—"I am sure this is the first time this has been done in England, and it has seldom, if ever, been done abroad. It is a much more tedious process than the converse culture of the *Ræstelia* from the *Podisoma*, which is done in a week or two, for this has taken two years. The germ tubes of the *Ræstelia* can enter through the stomata of the leaves, and the mycelium passes down the leaf and enters the green stem. Then it hibernates. The leaf by which it entered falls off, and two years afterwards (not the next year) the mycelium in the stems (which has shown its presence by causing a slight enlargement visible at the end of the second year) in the spring following produces the teleutospores.

"*Podisoma Juniperi*.—Although many cultures have been made by placing the mycelial spores of this fungus upon Hawthorn leaves, &c., and thereby producing the *Ræstelia lacerata* (its *œcidiospore*), very few have been made in the opposite direction, by placing the *Ræstelia* spores on *Juniper*. In the course of my experimental culture with the *heteronemia nredines* I resolved to try this experiment. For this purpose in the



year 1883 I obtained some ripe Juniper berries from my friend the Rev Dr. Keith of Forbes. In 1834, out of a great number of berries, I obtained some half-dozen seedlings. I also provided myself with two young Junipers, about 12 inches high, from Mr. Bird's nursery at Downham in 1833.

"*Exp. 420.*—On the 24th June, 1884, one seedling Juniper in a flower that was infected with *Ræstelia lacerata*. On 1st July it was noted that some of the leaves of the Juniper were paler in colour than the rest. On 11th August this was still more marked. 17th May, 1885, the base of the stem of the seedling was slightly enlarged, but there was no appearance of teliospores. During the summer of 1885 the plant died. It appeared as if the swelling at the base of the stem had strangled the plant.

"*Exp. 421.*—The two Junipers obtained from Mr. Bird were planted side by side in 1883. One of them was infected with the *Ræstelia* spores, but without result. The reason for that was that the plant had not got over the shock of its removal, and had not, at the time the infection was made thrown out any young leaves, so that the spores fell only upon old leaves. On June 25th, 1884, when it had thrown out new leaves, it was again infected. The other Juniper was covered with a bellglass in order that it might not become accidentally infected.

"*July 8th.*—Many of the new leaves have a paler hue. This paling of leaves is the rule when the germ tube of a *Uredium* has succeeded in entering a host plant. The first change noticeable is a sickly or paler spot, but subsequently changes colour according to circumstances.

"*Aug. 11th.*—The infected Juniper contrasts in appearance very strongly in foliage with the healthy one.

"*Nov. 11th.*—Many of the leaves which turned paler have now fallen off from the infected plant, so that it has an unhealthy appearance, a lanky habit of growth.

"*May 17th, 1885.*—The infected plant is deficient in last year's leaves in many places, but has thrown out new shoots and foliage. I can see no enlargements on the stems, but the appearance of the bush contrasts very strongly with that of the uninfected one growing beside it. There are no teliospores.

"*Oct. 28th, 1885.*—No teliospores have been produced this year, but I feel sure the infection has been successful, and that no mycelium of the *Podisoma* is present in those parts of the stems which are leafless, because they are slightly swollen.

"*Dec. 3rd, 1885.*—Swellings more marked.

"*Ap. 1st, 1886.*—The *Podisoma* has at length appeared upon the swollen parts of the leafless stems.

"*Ap. 11th, 1886.*—A specimen gathered and sent to the Scientific Committee, showing the mature teliospores.

"The other Juniper is perfectly free from *Podisoma*, and healthy in every respect.—WALTER B. FLOWRIGHT."

*Polyanthus, var.*—Mr. Henslow exhibited a pale-flowered variety, and a truss from a similar plant what had been treated with lime, the effect being to convert it to a crimson.

*Plants Exhibited.*—Mr. J. T. Lynch exhibited the following plants from the Botanic Gardens, Cambridge—*Cryhe rosea*, *Iris Eulefeldi*, from Turkistan; *I. Turtulle*, *Heterotropa asaroides*, with a remarkable Box-like flower and Cyclamen-like leaves from Japan; *Mackaya hella*, *Kämpferia ovalifolia*, *Tulbachia Lüdwigiana*, named after Lüdwig, a snuff merchant of the Cape, who originated the Botanic Garden there, and was the first hotanist to import large Cycads to England. Mr. Lynch also brought several varieties of Tulips.

## ORCHID SHOW AT BIRMINGHAM.

MAY 12TH AND 13TH.

THE Birmingham Botanical and Horticultural Society determined some time ago to hold a representative exhibition of Orchids in their gardens at Edgbaston this year, and to induce professional and amateur growers to bring their treasures together in friendly competition they provided a liberal schedule of prizes. A most favourable time was also selected for the Show—namely, the 12th and 13th of May, a period when Orchid flowers are abundant in collections, and when also the plants can be conveyed to and from exhibitions with the least risk of injury. The neighbourhood of Birmingham has become celebrated for its collections of Orchids, and the projectors of the Show were justified in their expectation that there were, few districts more likely to produce a satisfactory display of these popular plants.

Eleven classes were provided as follows:—1, Group of twenty Orchids distinct (open); prizes £15, £10, and £6. 2 and 3, Groups of ten, from amateurs and nurserymen; prizes £8, £6, and £4 in each. 4 and 5, Groups of six, also from amateurs and nurserymen respectively; prizes £5, £3, and £2. 6 and 7, Groups of ten distinct *Odontoglossums*, like the preceding for the two sections of exhibitors; prizes, £6, £4, and £2. 8 and 9, for six *Cattleyas* or *Lælias*; prizes £4, £3, and £2. 10, for twelve distinct species of *Masdevallias* (open) £3, £2, and £1. And 11, for twelve distinct cut spikes or bunches of Orchid flowers in glasses; prizes £3, £2, and £1. The total in all the classes was thus £141, the largest amount yet offered for Orchids alone at one exhibition.

The arrangement of the exhibits was under the superintendence of the Curator of the Botanic Gardens, Mr. W. B. Latham, and it is almost needless to say that he made the most of the material at his command. An exceedingly beautiful effect was produced, for Orchids lend themselves readily to artistic arrangement, being free from the formality that characterises so many exhibition plants, and are remarkably varied both in forms and colours.

The large glass exhibition house was devoted to the plants, which were admirably arranged on the side stages, with a due proportion of healthy Palms and Ferns to impart a more pleasing effect. The Orchids were not represented by the large specimens sometimes seen at other shows, but they were in nearly every case genuine specimens, and therefore better indications of the cultivator's skill. Some extremely handsome varieties were included in several of the collections, and a large number of distinct species was shown. The display was the more remarkable that with the exception of the Cheltenham plants they were all from growers in the district, and in all respects they were most creditable to the exhibitors, and

never has a more beautiful exhibition of Orchids been provided, for though the Kensington Conference last year brought a larger number of plants they were not so effectively displayed.

We can only briefly note the winners of the prizes in each class, reserving fuller note for another occasion. Class 1.—First, Mr. James Cypher, with handsome plants of *Cattleya Skinneri oculata*, *Dendrobium thyrsiflorum*, and *Cypripedium Lawrencianum*, being the finest amongst many that were good; second, A. A. Wills, Esq., with smaller plants, but freely flowered. Class 2.—First, C. Winn, Esq., with fresh and beautiful plants of *Odontoglossum vexillarium*, and *Cypripedium Lawrencianum* forming the leading attractions. The Right Hon. Joseph Chamberlain was second, and Joshua Fellowes, Esq., third, an extra prize being awarded to Edwin Wright, Esq. Class 3.—First, Mr. James Cypher, who was also first in classes five, seven, and nine, in each case showing plants of the usual high quality. Class 4.—First, Mr. Chamberlain, with six very handsome plants superbly flowered; second, Mr. C. Winn, and third, Mr. E. Wright. The *Odontoglossums* in classes six and seven were of excellent quality, Messrs. C. Winn, J. Fellowes, and Cypher taking the honours. Class 8.—First, Mr. Winn, with small but healthy plants, very distinct. Second, Mr. Chamberlain. The *Masdevallias* from Messrs. Winn and Fellowes were exceedingly bright, and the cut blooms from Messrs. Cypher, Winn, and Chamberlain very beautiful. Several groups of Orchids not in competition were awarded extra prizes. The Exhibition was a decided success, but the weather on the opening day was most unfavourable, continuous rain deterring many visitors from attending the Show.

## ROSE SHOW FIXTURES, 1886.

FOR the guidance of those Societies which have not as yet fixed the dates of their exhibitions I append the following list of Rose Shows arranged to be held during the coming season by the National Rose Society and Societies affiliated with it.

Bagshot and Windlesham Rose Society, at Bagshot, Tuesday, June 29th.

Diss Horticultural Society, at Diss, and the Canterbury and Kent Rose Society, at Canterbury, Tuesday, June 29th.

Croydon Horticultural Society, at Croydon, Wednesday, June 30th.

Farningham Rose and Horticultural Society, at Farningham, Wednesday, June 30th.

Reigate Rose Association, at Reigate, Thursday, July 1st.

Tunbridge Wells Horticultural Society, at Tunbridge Wells, Friday, July 2nd.

Brockham Rose Association, at Dorking, Saturday, July 3rd.

Eltham Rose and Horticultural Society, at Eltham, Saturday, July 3rd.

National Rose Society, at South Kensington, Tuesday, July 6th.

Cardiff Rose Society, at Cardiff, Wednesday, July 7th.

Ealing, Acton, and Hanwell Horticultural Society, at Ealing, Wednesday, July 7th.

Sutton Amateur Rose Society, at Sutton, Wednesday, July 7th.

Bath Floral Fête and Band Committee, at Bath, Thursday, July 8th.

Hitchin Rose Society, at Hitchin, Thursday, July 8th.

Ipswich and East of England Horticultural Society, at Ipswich, Thursday, July 8th.

Hereford and West of England Rose Society, at Hereford, Friday, July 9th.

Maidstone Rose Club, at Maidstone, Friday, July 9th.

Cray Valley and Sidcup Horticultural Society, at Froggnal, Saturday, July 10th.

Wirral Rose Society, at Birkenhead, Saturday, July 10th.

East Gloucestershire Rose Society, at Moreton-in-Marsh, Tuesday, July 13th.

The only fixtures of Rose Shows not in connection with the National Rose Society that have as yet reached me are the two following:—

Oxford Rose Show, Wednesday, July 7th.

Crystal Palace Rose Show, Saturday, July 3rd.



## KITCHEN GARDEN.

THE weather during the past fortnight has been very dry and warm; young vegetables have pushed up considerably, but a deluge of rain would benefit them more than anything now. Early Peas in blossom have had a thorough watering with liquid manure, and so have Cauliflowers. We do not like to make watering general in May, but if it continues dry we shall have to do so, especially in the case of all crops which are behind their usual time in being ready for use this spring. Liquid from a manure heap or a little guano dissolved in water may be used with great advantage.

**CELERY.**—Some of the old plants of 1885 are still retained, as the cook uses them frequently and none will be thrown away. They have been lifted from the quarter on which they were grown and are laid in by the roots in an odd corner. The ground from which they were lifted is now bearing Carrots. Trenches should be formed at once for the earliest of the young plants. If required for exhibition, plant them in single rows in trenches 10 inches deep and 13 feet apart. Give them abundance



of manure from the earth closet. Lift them with good balls of soil attached, and replant without disturbing the roots. As soon as they are planted water freely, and they will begin growing. Where it is only wanted for ordinary use two or three rows may be planted in each trench. The plants should stand 8 inches apart each way at least. Celery planted now will be in excellent condition for use by August. Tread the soil very firmly round the plants; never allow them to get dry at the root, and no loss will occur from "bolting" or flowering prematurely. Many frames are now being cleared of early Potatoes. The soil in these should be levelled, and then dibble late Celery plants in all over the surface at a distance of 2 inches or so from plant to plant. Put the lights over these for a few days, water freely, and capital plants will be produced for placing out in June or July. Plenty of water with rich and firm soil will always produce excellent Celery.

**BROCCOLI.**—Late varieties are small this spring, but the quality is good. Sutton's Late Queen has again proved the best of all. The severe weather did not injure it in the least, and at present it is excellent. Seed of this variety should be sown now to produce plants which will bear at this time next year. Seed of other varieties should also be sown in good soil as soon as possible.

**SAVOYS.**—Where many vegetables are required in late autumn and winter, Savoys are as useful as any vegetable that can be grown. They are always sure of making a crop. They are very hardy and remunerative, and such varieties as Gilbert's Universal and Green Globe are choice in quality. The seed may be sown broadcast in a small bed, or a few short rows will afford plants for a large plantation. They require rich soil at all times.

**THINNING YOUNG VEGETABLES.**—Turnips, Carrots, Spinach, and others sown some time ago are now growing freely, and it should always be a rule to thin them before any are spoiled by being crowded. When this happens the young plants are drawn, and if not completely spoiled they are generally checked and injured. As soon as all such plants can be handled they should be thinned until they stand 3 inches apart. Then, as they meet again, every other one should be taken out. A sharp boy or a woman will do very well for this work, the main point being not to delay it until too late.

**SALSAFY AND SCORZONERA.**—These are both most useful winter vegetables, and although we would not advise a cottager to sow any great quantity of either, we would recommend all amateurs to grow both, and in large gardens the absence of these crops would be unpleasant. They should be sown in much the same manner as Beetroot or Carrots. The ground should be open, moderately rich, and from 1 foot to 20 inches deep. Drills about 2 inches deep should be opened 16 inches apart, and the seed sown in them very thinly. After covering over tread down very firmly, and finish off by rolling. Mice are particularly fond of these seeds. We have known them to eat every one of them before they had time to germinate, and we advise them to be looked over every other day until the young plants are well up.

**LETTUCES.**—Those sown in the autumn and wintered at the bottom of a wall had a hard time of it in the spring, but they recovered in April, and of late we have been cutting crisp heads from them. Those raised under glass in spring have also been planted out some time ago, and are doing well, and the young plants which have been raised from seed sown in the open are now ready for transplanting. It is these open-air-raised plants which many of our readers will have to deal with, and a good number should be planted in rich soil at once. These will be ready for use in June and July, and as the weather is warm, as a rule, then, and Lettuce very acceptable, the crop should on no account be neglected, and until the end of June a pinch should be sown every ten days. As a rule there are plenty of young Lettuce plants to work with in early summer, but they often become scarce by August and September, and care should be taken that the supply is maintained.

**EARTHING UP.**—All Potatoes which are through the ground should be earthed up. If the soil is poor sprinkle a little artificial manure along the side of each row before earthing, then with a drag hoe draw the soil up against the stems to form a broad ridge. Early-planted Cauliflowers and Brussels Sprouts should also be earthed up. Before doing so last year we sprinkled a small handful of guano round each, and we did not lose a single plant afterwards from worm at the root, clubbing, or any cause. The grubs evidently did not appreciate the guano, but the Cauliflower did.

**KIDNEY BEANS.**—A few more of both the Dwarf and Runner varieties should be sown to succeed the first, as through unfavourable weather and other causes these are not always a success. Now, however, they may be sown with every certainty of their doing well, as the young plants will not be through the soil until about June, and then their growth will be sure and rapid.

**HOEING.**—Weeds are worse than useless in the vegetable garden, and they should never be allowed to become large or go to seed. The best way of treating them is to hoe them down when the soil is dry and when they are small. If allowed to grow and seed now they will be a constant trouble during the whole season, but if checked in time they will soon be exterminated, labour will be saved in the autumn, and the garden will leave a neat clean appearance.

**PICKLING ONIONS.**—These can hardly be too small, and they should be sown later than the others. Now is a good time to put them in. Sow them broadcast in a narrow bed, and give them a very poor soil, as this is the only means of keeping the bulbs small.

**TOMATOES.**—Plants intended for open air culture should now be placed outside, but do not plant them out for a week or two yet. If they can only be hardened off and planted out without receiving a check there

is no danger of failure afterwards. Indoor plants now require copious supplies of water. Those bearing fruit should have a quantity of liquid manure three times weekly. Admit plenty of air to plants on which the fruit is ripening. Rub the side shoots off frequently, and confine the plant to one or two main stems.

#### FRUIT FORCING.

**FIGS.—Early-forced Trees in Pots.**—Take advantage of mild days to increase ventilation, and expose the fruit as much as possible to the sun. When the first crop is gathered, as will soon be the case with trees in pots started in November, return to the treatment applicable to trees swelling off crops. Red spider having gained a footing, determined measures must be taken for getting rid of it by syringing twice a day, or washing the leaves with a weak solution of softsoap, 2 ozs. to the gallon of water, on fine evenings twice a day until new growth is being made freely. Where the second crop has set thickly on free-bearing varieties, such as Brown Turkey, the best of Figs for forcing, thinning should be carried on liberally, as there is little danger of the trees casting their fruit after this period provided they receive generous treatment. With a view to a succession of fruit it may be left of different sizes on the same branch, but it is useless trying to take more than two crops in a season, as the trees must have rest through September and October. Growth after this period will necessitate frequent attention to stopping and training, as the best Figs are always produced on vigorous young shoots fully exposed to sun and light.

**Succession Houses.**—When the fruits are swelling for ripening a higher and drier atmosphere will hasten maturity; but care must be taken to afford plentiful supplies of tepid liquid manure to the roots, and to syringe the foliage regularly, as any sudden check might prove injurious. As the Figs approach ripeness it will not be advisable to wet them if it can be avoided, nor is it necessary, as atmospheric moisture can always be secured by keeping the mulching, walls, and paths properly moistened, and this can be prevented from condensing on the fruit by maintaining a steady circulation of air with gentle fire heat. When grown in a hot, dry house the Fig soon becomes infested with red spider and scale, and as a natural consequence the ripening period is shortened, and the trees simply rest because they are exhausted; the second crop is consequently puny, rusty, and unsatisfactory; but feed them liberally, ventilate freely, and syringe as often as they are divested of ripe fruit, and they become perpetual bearers. To keep a Fig in constant bearing it must be continually growing, and for this reason the extension system answers the purpose best, as the leading shoots are allowed to extend without topping until they reach the extremity of the trellis, when they are cut away at the winter thinning to make room for others succeeding them.

**Cold Houses.**—Fig trees in these, notwithstanding the ungenial spring, seem to be showing plenty of fruit, last season being highly favourable to the ripening of the wood, and with favourable weather they will afford an acceptable supply of fruit in August and September. Assuming the roots are confined to reasonable limits inside the house, and that the borders are concreted and thoroughly drained with broken bricks and old lime rubbish, a material upon which they seem to thrive, they will require very copious supplies of water and syringing twice a day. Except in cloudy weather the afternoon syringing may be dispensed with, and in bright weather it may be performed early with all the solar heat that can be shut in to insure the proper drying of the foliage before nightfall. The young growths in these structures should be trained a good distance apart, as overcrowding impedes the free passage of light and warmth, so essential to the ripening of the fruit and wood. Close stopping in late houses is not a good plan, as it results in the production of a number of late growths which do not get properly ripened before the leaves fall. The safest course is to secure firm short-jointed wood, and allow the points to grow up to the glass, a position in which they will form abundance of embryo Figs ready for swelling in the spring.

**MELONS.**—As pits and frames in which Potatoes, &c., have been grown become vacant, they may be prepared for Melons. Root-bound plants are not good, and large overgrown plants receive such a check on removal that preference should be given to healthy samples stopped and in 4 and 5-inch pots. The soil in which the Potatoes, &c., are grown having been cleared out, turn the leaves and add some fresh ones to raise the bed to within the required distance of the glass, allowing a few inches for settling, treading them firmly at the time of putting them in the pit. The turning and addition of fresh leaves to the beds will insure a gentle warmth and give the plants a start. A few inches of decayed manure may be placed on the leaves, and then the soil, a couple of barrowloads in the centre of each light to form the hillocks and extending outwards so as to cover the bed, and yet leave a hillock in the centre about a foot high with a flattened top. When this has been in the frame two or three days tread all down firmly, hillock as well as the other part, and if these are reduced in height so as to have a depth of 9 or 10 inches of soil, and there is a slight incline from them outwards, it will be all the better, so as to keep the water from the neck or collar. Earthing these beds will not be necessary. The plants having previously been well watered, so as to cause the roots to leave the sides of the pot and not necessitate watering at planting, put out; press the soil firmly around each, and should the sun be powerful shade for a few days until they become established, after which it should be discontinued.

Other plants should now be raised to place in frames, which will shortly be cleared of hedging plants. Syringe plants when hot water is at command during bright weather, but early in the afternoon will be sufficiently often for plants in structures not so heated. Ventilate early in the morning to prevent the foliage being scorched by the sun shining on it whilst covered with moisture or the leaves full of moisture, for the ventilation



will accelerate evaporation. From 7.30 to 8 o'clock is a proper time to ventilate, but it will need to be regulated by the weather and aspect of the houses. Half-past three to four o'clock on bright days will be soon enough to close the house. Those in flower will need a somewhat dry and airy atmosphere, the blossoms being fertilised at midday until they have set their fruit, after which they should be subjected to a moist atmosphere, with a minimum temperature of 70° and a maximum of 90° to 95° with sun. Three or four fruits, according to the strength of the plants, will be sufficient on each, all others being removed as they appear. Plants with the fruit ripening will require a high temperature—70° to 75° artificially, and 85° to 95° by day from solar influence, with a gentle circulation of air constantly, and moisture must be kept from the atmosphere.

#### THE FLOWER GARDEN AND PLEASURE GROUND.

**Hardening Plants.**—Zonal Pelargoniums being grown in cool houses and pits, and well exposed to the full sunshine, require but little hardening off; in fact, ought now to withstand any cold weather we may now have. Those recently growing in heat will still need a little protection during cold frosty nights, and this protection will be still more effective if it also ward off heavy rains. The last to be fully exposed and planted out are such easily injured kinds as Heliotropes, Iresines, Coleuses, Alternantheras, and the majority of the sub-tropical plants. Iresines and Coleus may yet be struck, and now is a good time to put in large quantities of Alternanthera cuttings. A nearly spent hotbed or a slight newly made hotbed faced over with a layer of fine sandy soil about 4 inches deep is the best place for striking them in quantity. The cuttings may be dibbled into this 3 inches apart each way, and if kept close and shaded from bright sunshine will strike root quickly and be quite as large as required by bedding-out time. In hardening off these and other delicate plants the greatest care must be taken to avoid over-watering and to prevent saturation by heavy rains. If injured at the roots they are a long time before they recover. If the stock of Iresine Herbstii is insufficient, a good substitute will be found in Amaranthus melancholicus ruber. Sown in heat at once it will germinate in a few days, and potted off singly into 2-inch pots will, if kept in heat, be large enough to bed out by the second week in June.

**Sowing Carnation Seed.**—No plants in the borders are more useful than these and Picotees, and seedlings are by far the most vigorous and floriferous. It is true a good percentage of them may be single-flowering, but even these find plenty of admirers. The seed should be sown thinly in pans or boxes of fine sandy soil and only lightly covered. If well attended in the shape of proper moistenings and shading, the seed will germinate in a cold frame or under a handlight, and still more quickly in a gentle heat, such as a partially spent hotbed. We sow very thinly, and this saves the trouble of pricking out, the plants being transferred to a well-prepared bed directly they are large enough to stand the exposure. If sown at all thickly they must first be pricked off in boxes or pans of light sandy soil, and later on planted out. They succeed best in slightly raised beds, say about 6 feet wide. Our last summer's seedlings were planted out 12 inches apart each way, and the young flower growth meet all round. So very floriferous are they, that we find it unwise to depend upon them a second year, and annually raise a fresh batch.

**Campanulas.**—Those of the Medium or pyramidalis type are the best for the open borders, these being quite hardy in most districts and flower profusely late in May and June. They also put up well from the open ground, and are then very serviceable for conservatory decoration. The seed ought now to be sown on the even surface of a pan of fine soil and only lightly covered. It may be stood in a warm frame or in the open, shading from sunshine, and moistening when necessary. If the pan is covered with a square of glass germination will be quicker and more sure. When the seedlings are large enough to handle, prick off the required number in pans or boxes of good soil, and finally plant out when of good size, disposing them about 18 inches apart each way.

**Stocks, Wallflowers, and Sweet Williams.**—It is unwise to delay sowing these till after the busy bedding-out time is past. To have them strong and bushy before the winter the seed ought to be sown early or some time in May. If the ordinary garden soil is light the seed may well be sown thinly, either broadcast and covered with a little fine soil, or in shallow drills about 6 inches apart. Where, however, the garden soil is heavy and cold, and slugs perhaps very abundant, it will be found the best plan to sow the seed either in boxes or under bandlights, using a little light sandy soil in each instance. In this way nearly every seed will germinate, and later on the young plants may be pricked out in a sunny, open position, where they are to flower, or they can be transplanted. The Brompton and Queen Stocks are suitable for present sowing, these withstanding an ordinarily severe winter, and flowering grandly in the spring. Wallflowers Blood Red and Belvoir Castle Yellow, or the best procurable dark red and yellow strains, may be substituted, and those who may wish to try the tall double German Wallflowers should sow these now. Most seedsmen have a good strain of Sweet William.

**Pansies, Polyanthes, Primroses, and Alpine Auriculas.**—All these can be readily increased from seed, although they ought to have been sown in March or April, in order in each case to have strong flowering plants for next spring. Sow in pans of fine sandy soil, keep close and shaded, and directly the seedlings appear give more air and gradually expose to the light. Prick off the seedlings when large enough to handle, and transplant to well-prepared sheltered beds directly the plants are strong enough to bear removal.

**Carpet Beds.**—Where the beds intended to be filled with carpeting plants in various designs are unoccupied with spring-flowering plants,

advantage should be taken of showery weather to commence filling them. The groundwork of the plan is generally filled in with Sedums, Veronica repens, Antennaria, Mentha, Herniaria, and other dwarf and hardy trailing plants, and these may be, and are, all the better for being freely divided and dibbled in thinly and evenly. Every little piece will grow providing it is kept slightly shaded with branches of evergreens and watered frequently till well established. It is unwise to attempt to lay down any complicated design, as these, although effective on paper, are often failures when worked out, and the more simple designs, these having every figure quite distinct, are more easily planted, and are less trouble to keep in order. The lines of the design should be traced out on a perfectly smooth and fine surface, and may be made more distinct if formed with silver sand. The groundwork being filled in with the above-named plants, only leaves the figures to be filled with the Alternantheras and other choice plants when this may safely be done.

## THE BEE-KEEPER.

### INITIATORY INSTRUCTIONS.—No. 6.

I HAVE endeavoured to lay before intending bee-keepers the fundamental rules of profitable bee-keeping in a plain and concise manner, and I am sure success will follow those who abide by the instructions given, and so long as their hives do not exceed the number the bee-keeper desires to work for profit. Whenever their hives exceed that number, experiment with these in every conceivable fashion to get at facts, and be able to rely upon your own knowledge and method of working, without which no one will ever be a successful bee-keeper.

Spreading brood will no doubt be included in these experiments, but the bee-keeper possessing a good understanding will soon discover its futility. A young fertile queen, new combs, plenty of bees and well provisioned, are the natural essentials toward strong hives, early swarms, and profitable bee-keeping, if right-shaped and full-sized hives are used. If hives are to be useful and handy for carrying about, getting the advantage of flowers in different districts, the frames of such hives must be made so that they will retain their natural position (which is 1½ inch from centre to centre) in a rigid manner. This will preclude the possibility of making even a more foolish manipulation than spreading brood—viz., that of bringing the combs nearer each other than Nature has designed, allowing at least two bodies of bees between the seams necessary to keep up the proper degree of heat, and attend to the brood in a proper manner, which is impossible when the distance between the combs is reduced to a quarter of an inch or so. While I am writing this (May 4th), we have not had a week's fine weather—most unsuitable for manipulating bees; yet I hear of some well-managed hives are within a week of swarming.

Is the present year an exceptional one? Yes, so far as the long continuation of a very low temperature is concerned, but not otherwise. The weather in other respects is just as we have hitherto experienced, and just as one hour of frost will kill a tender plant, so will one cold day in April or May destroy the spread brood of any hive when the bees draw together to preserve themselves and brood alike during the cold. March, April, and May are the three severest months for bees, and during these months they are rapidly preparing for swarming, and should not be exposed in any way.

There is one experiment that I have tried with success, and would like to see others give it a fair trial. It is lining the inside of the hive with sheets of wax, so that the wood will not absorb moisture. This is in direct opposition to the opinions and plans of many who seek an absorbing material for the inner walls of hives—good when these are thin and single-walled, but bad when thick and double-cased. With the former, when covered with straw, the heat of the hive forces it outward and the current carries it away; but in the latter case the walls absorb moisture, returning it to the hive, while there is no possible escape for it otherwise, and there is no greater enemy to bees than damp, especially on floors and in the corners of wide hives. Wax is the natural non-



conducting product of the bees, which they build their combs, therefore it is the best thing that can be used, being comfortable for the bees to walk on, does not absorb damp, and, if a hive is infected with foul brood, only requires to be removed by heat and lined anew. All the condensed vapour falls through the ventilating floor and the hive is in the best possible condition for health and comfort to the bees, preserving them throughout the year satisfactorily, and this is the best and only way of having the proverbial strong hives of bees which are able to collect abundant stores for their master and themselves.

Providing bees with water in a proper way is of greater importance, and saves more bees' lives than many bee-keepers are aware of. If bees are allowed to find water from natural sources many are lost, falling into water, or, what is more common, many die in the act of sipping it from places so cold that the bees become chilled. To overcome this some means should be devised to supply the bees with water, so that the sun will heat it. As the majority of bee-keepers incline to combine the useful with the interesting and ornamental, the ornamental crystal fountain as invented by "A Renfrewsbire Bee-keeper" cannot be surpassed. When once the bees find it, it prevents them leaving the apiary in search of water, and it whenever the sun shines become heated and tempting to the bees.

In preserving bees lies the secret of success. In addition to what has been said on that subject, endeavour to keep down every scent of honey, syrup, or combs that is likely to attract bees, which incites robbers and may spread disease. Hives with common floors turn out all the *débris* from the entrance, which attracts stranger bees, and causes fighting and spreads disease. The ventilating floor prevents that if the *débris* is collected on a piece of paper and burned.

The temporary covering of hives both at home and on the moors so as to completely throw the water off is sometimes not properly performed. Those who are in the habit of sending their bees to the Heather will find the single-cased hive handiest and superior in every respect; a mat wrapped around them and plenty of dried grass above, placed in an uneven manner so as to allow the air to pass beneath an oil cover or sheet of metal, not tied with cards, but weighted with stones put into pockets, which may be either sewn or fastened with hooks. After September neither alter the appearance nor site of any hive unless it be some miles distant, and even then preserve the original appearance of the hive, and on every occasion of removal. Never place hives in a line nor equi-distant from each other. Bees have their peculiarities not easily explained. They are retentive in memory, yet a slight alteration misleads them. This season my hives stood in twos, a high hive and a low one together, and on each side were low ones. In one of these spaces I placed a similar high hive, and although it was 6 feet distant from the tenanted high one, it attracted its bees in great numbers, so we had to remove it.

Some things are inexplicable. The memorable bad honey year of 1877 will be long remembered as one of the many poor seasons for honey. Towards the end of July of that year, when I left on Monday for the Edinburgh Show, I left between twenty and thirty of the strongest-bred Ligurian hives I have ever seen, and on returning on Saturday found them all in a state of starvation, saved only from death by the timely feeding by my wife, who detected their state in time. There was no alternative now but to feed. To every one I gave from 25 to 30 lbs. of sugar within a week, hoping this would be sufficient to tide them over till another year, which, with the exception of one, nearly sufficed. The one referred to excelled every other hive in numbers, which I examined after I had given it 25 lbs. of sugar, but not a single cell of syrup was to be seen. What they did with it and where it went to I do not know, except that the bees took it in the first instance, but to what use they put it I know not. It got another 25 lbs. (50 lbs. altogether), but this time it stored and sealed it properly.

I note the remarks made by "Felix" in his closing paragraph, page 323. I quite agree with what he says. I think my life would have been ill spent if bees and appliances for their management had been the only good I had done. Praise I neither want or like, but I certainly dislike to see those who have been bee-keepers only a few years or removed from the original system of bee-keeping pirating and appropriating others' ideas.

With the Editor's permission I may some day give the dates of inventions, with inventors' name, of many of the appliances in use at the present time.

Perhaps the most important instructions I can give to beginners is to be careful and get the best-made appliances from those with most experience.—A LANARKSHIRE BEE-KEEPER.

### SEASONABLE JOTTINGS.

THOSE bee-keepers who made proper preparations in the autumn to insure this year's success will now be rejoiced to see their bees busily engaged in supers, divisional or sectional, for no others ought to be employed unless there is a special local demand for them. A late spring has retarded blossoms, while bees do not appear to be many days later than in milder seasons. Last year my stocks were supered on the 25th April; this year supers were placed on the 26th, or one day later. All supers were at once taken possession of by the bees, and are now being worked most satisfactorily. Honey is coming in principally from Gooseberries and Currants, but Apples, Pears, Cherries, and Plums are all bursting into bloom, so that in a few days a vast field of labour will be extended before the bees. If the weather continues fine and not so hot and dry as to parch up vegetation the prospect for bee-keepers is a glorious one. The late blossoming of the orchards will enable the bees to gather honey in greater quantity than is usually the case, the season being extended over May until white Clover bursts into bloom by Sycamore, than which there is no more honey-giving tree nor any more welcome, yielding its rich nectar as it does just when otherwise an ugly hiatus would occur between the ingathering from the fruit and Clover bloom.

Most bee-keepers will by this time have decided whether to work for run or comb honey. In the present state of the honey market the most advisable method is, I think, to get all in the comb if possible, taking care to employ supers of the kind which are most readily saleable and command the highest price.

Those who employ sectional supers and sections in particular seem occasionally to experience no little trouble in fixing foundation firmly in them. There is a small machine by which foundation is said to be readily and neatly fixed, but as I have never had occasion to employ any such mechanical aid in so simple a matter I cannot say anything of its merits or demerits. It is not a necessity, and should therefore be scheduled with the many other useless and expensive because not necessary appliances. It may be a help to some if I point out a simple, easy, and very speedy method by which foundation may be fixed in sections, either whole sheets or starters only being used.

The foundation being cut into pieces of the desired size, take the section and hold it top downwards in the left hand, taking care to leave the thumb free for supporting the sheet. Now, the piece of foundation must be taken in the right hand, and the edge which is to be fastened to the section held to a fire until it becomes a little, but very little, soft and pliable, then lay it flat along the bottom of the section, such bottom being in reality the top when the section is in its proper position, and with the thumb of the right hand press the tiniest strip of the edge of the wax to the centre of the bottom piece of the section until the wax begins to harden, when the thumb of the left hand must raise the foundation until it stands at right angles to the bottom. The section may immediately be placed in its natural position, and if the work has been done properly no fear need be entertained of failure. By this plan no extra wax is used, no material wasted, and the sheet is thinned down at the junction, this being a good feature in the method. It is very easy when a little experience in the work has been gained to fix 100 an hour. It is difficult to give instructions so plain in such a matter as to enable all to grasp the details, but the general idea will be made sufficiently clear perhaps to enable those who desire to do so to attach their foundation more firmly and more easily than before.

Queen wasps are more numerous this year than for many seasons, and unless either heavy rains or some other destructive agent destroys these pests, weak stocks will have to fight in autumn for their homes and stores. They can easily be destroyed, although it seems a pity to kill the bright gleaming insects that shine so prettily in the green verdure, but they must die or the bees will suffer.

The question of vessels for our honey will soon again become



an urgent one, and demand the attention of all. At present there appears to be nothing superior to plain glass jars, and it is always well at any rate not to appear to charge anything for the glass, the extra price can be put on the honey. People appear to prefer to give 1s. a pound for a pound glass of honey rather than 11d. for the honey and 1d. for the glass. Each one must look to his own customers and suit their varied wants and requirements. Pretty vases please some, plain jars are fancied by others; cheap, clean and clear glass of any description is my favourite honey jar, neatly, yet unpretentiously, labelled "pure honey," and tightly sealed. All jars should be made returnable to home customers; a fair commission be given to those who undertake to sell on these terms, and as much honey as they require for home use free; the best quality always being supplied, no inferior being allowed to leave the apiary. Swarms this year will, in neglected apiaries, be later than usual, few stocks now being strong enough to give much prospect of a May increase.

The season is now before us; the future, with all its uncertainties, failures, and successes, lies hidden from our view. I can only hope that each one may realise how profitable bee-keeping is when proper attention is paid to details of management, and how great the pleasure in supplying the wants and forestalling the desires of bees, helping, assisting, and watching them as they labour in a ceaseless effort to provide for the storms of a yet distant winter.—FELIX.

### SECTIONS OF HONEYCOMB FROM A FRAME HIVE.

I SHOULD be grateful for information on the following points, in connection with bee-keeping, through the columns of your valuable paper. I have a bar-frame hive capable of taking sixteen standard size frames parallel with the entrance, into which I propose putting a swarm as soon as I obtain one. What would be the best way to manage the hive in order to obtain the best yield of honey in 1 lb. sections, and to leave the bees sufficient stores for winter? And which is the best way to fix foundation in sections? What would be the simplest and most expeditious way of extracting from twelve to eighteen frames of honey, so that the combs may be used again? It scarcely seems necessary to purchase an extractor for so small a quantity. Does Mr. Thomson's "Essay on Bees" contain a description of the Stewarton hive and the mode of working it? Where is Pettigrew's "Handy Book of Bees" published? The last edition of "Manual for the Many, Bee-keeping" being, I am informed, out of print, will another edition be produced; and, if so, when will it be ready?—F. E. B.

[It depends altogether on circumstances how your hive should be managed to obtain the best yield of honeycomb; time, size of swarm, and locality are all potent factors. But, supposing all things are favourable, then your hive should be nearly filled with comb (in all its sixteen frames) before any sections are put on. If one swarm is not sufficient for this in time for the honey season, two swarms should be joined. Then put your sections on the top, half covering the top at first only, and as soon as these are well begun add more, continuing adding empty ones and removing full ones as the season advances. The form of your hive is not the proper one for obtaining surplus honey, and the frames parallel to the entrance is not a point of good bee husbandry. The sixteen frames are all required for breeding and storing honey for the future wants of the bees; it would be better a little larger. If you would adopt the tiering system advocated by "A Renfrewshire Bee-keeper" and others in this Journal for the past thirty years, and now universally adopted by those who opposed it as well as nearly all others, you would find it more to your profit and to the comfort of the bees. The best way to fix comb foundation in sections is to have them grooved, then with a teaspoon that has been left in the wax while melting in a glue pot, pour a little wax, so that it will keep in the groove, first on one side then on the other, holding the section a little elevated, so that the wax will pass over the whole length of frame or section.

When honey is not very thick, by carefully uncapping the cells and placing them flatways on a sieve, the honey will drip out; but the process is a slow one and deteriorates the quality of the honey. When honey is thick nothing but a presser will force it out. This was the case last year. The centrifugal extractor was of no use even for our Clover honey. There is a description of a cheap honey extractor in the *Journal of Horticulture*, which appeared some twenty years ago, similar to the "Mepel" G. O. Wray claims to have invented; but if you wish to be at little or no expense, why not try the original extractor, put the combs in a can with a handle, and swing round your head until the honey is ejected?

The Essay contains a description and the management of the Stewarton hive. Pettigrew's "Handy Book on Bees" may be had from Blackwood and Sons, Edinburgh. The manual on bee-keeping will be reprinted and will be advertised when ready.]

### TRADE CATALOGUES RECEIVED.

James Veitch & Sons, Chelsea.—*Catalogues of New Plants for 1886 (illustrated) and Bedding Plants.*

E. G. Henderson & Son, Maida Vale, W.—*Catalogue of New, Rare, and Other Plants.*

James Dickson & Sons, Newton Nurseries, Chester.—*Catalogue of Stove, Greenhouse, and Conservatory Plants; List of New Roses, &c.*



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Waterproofing Calico (Ebor).**—A cheap and easy mode of rendering calico waterproof, so as to make it applicable as a temporary substitute for glass as a covering to frames, is by the following process:—Take pale linseed oil three pints, sugar of lead 1 oz., and white rosin 4 ozs.; grind the sugar of lead with a little of the oil, then add the rest and the rosin. Stir the whole well together in a large iron pot over a gentle fire. Tack the calico loosely on the frame, and apply the mixture while hot with a large brush.

**Captain Christy Rose (C. E. Smith).**—Some kinds of Roses are more apt than others to produce blooms such as the one you have sent to us. It is due in many instances to the unripened state of the wood. Poverty of the soil will also bring about the same result. A check from some cause or other will bring about the production of green-eyed monsters. Another and a certain cause is unduly forcing them into bloom before they have time to thoroughly develop themselves. But in most cases it is either due to poverty of the soil or inactivity of the roots.

**Liquid Manure for Fruit Trees, &c. (F. J.).**—The best kind of liquid manure you can make to use "stiff" for diluting with water is soot. Place two bushels of soot in a cask and add thirty-two gallons of water. Stir well with a broom handle, or an old worn-out birch broom is best, and repeat until the soot is thoroughly mixed. A pint of the stuff so formed may be added to three gallons of water for watering fruit trees, Strawberries, &c. The whole must be well stirred up before use. Guano may be used at the rate of an ounce to a gallon of water, and it only needs placing in the water and stirring up when used.

**Warts on Vine Leaves (J. S.).**—The warts or excrescences on the under side of the Vine leaves are caused by a check to the evaporation from the foliage and consequent stagnation, followed by a period in which the evaporation is excessive and the tissues are ruptured, hence the excrescences appear. It is usually most prevalent in dull seasons, when air cannot well be admitted without lowering the temperature. In dull and cold periods a little extra fire heat should be afforded so as to allow of air being given to induce a circulation, and this without lowering the temperature. The warts are not so numerous as to injure the Vines, and have nothing to do with phylloxera.

**Strawberry Blossoms without Anthers (J. E.).**—The usual cause of the blossoms not having anthers is a deficiency of moisture in the previous growing season, which prevents the proper development of the buds. Lack of anthers sometimes arises from excessive luxuriance in the plants, and in that case the embryo flowers are not properly formed, being in that condition known as not "thoroughly ripened." In your case we think it is due to the drought of last season, and the supplies given between the rows have induced a late growth. The loss of anthers is sometimes due to cold. With finer weather the late blossoms will probably come quite right, and the blossoms without anthers may set through pollen reaching the stigmas from other blossoms.

**Worms in Lawns (D. Watson).**—Either of the following two methods may be tried; both have answered the purpose of extirpating worms:—1, Half an ounce of corrosive sublimate (bichloride of mercury) dissolved in fifteen gallons of water will cause worms to come to the surface; but care must be taken that fowls do not eat them, otherwise they will be poisoned. A peck of freshly made quicklime mixed with forty gallons of water, and allowed to stand till it clears, if applied through the rose of a watering-pot will have the same effect. These mixtures may also be used to remove worms from flower pots. 2, Place a peck of quicklime in thirty gallons of water, stir well up, and allow it to stand for a few days until it is quite clear; then water the lawn thoroughly with the clear lime water. The worms will come to the surface, when they may be swept up and cleared away. This is an old and useful mode of eradication.

**Buckland Sweetwater Vine (Clifton).**—This Grape is generally very shy even under good cultivation, and often fails to carry a crop when grown by the most skilful cultivators. If you desire a white Grape you cannot do better than procure a Vine or two of Foster's Seedling, which is a free and certain fruiter, and will do well with the same treatment as Black Hamburgh. If inarched at the base this season, and the old rods cut off at pruning time, they would make strong canes another year. If you decide, however, to fill the space with Black Hamburgs you may commence doing so at once by encouraging shoots to extend from the base. Some of the lower laterals could be removed to give them light. You will save time by



this system, and next year you will have canes that will furnish a third at least of the space. We have often known the Buckland Sweetwater bear well on a strong well-ripened young rod when scarcely any bunches were produced on spurs after close pruning.

**Tobacco-leaved Cherry** (*C. Morden*).—Certainly there is a Cherry distinguished by the above name, and with half a dozen synonyms in addition. There is nothing for which this Cherry is remarkable, except its large leaves and high-sounding name; however it came to be called "Four-to-the-Pound" would puzzle anyone to imagine, but such is the name by which it was at one time known, and under which it was found in all nurserymen's catalogues. It is a very old Cherry, and is evidently of English origin, being mentioned by Parkinson as early as 1629, under the more modest designation of "Ounce Cherrie." He says, "The Ounce Cherrie hath the greatest and broadest leaf of any other Cherrie, but beareth the smallest store of Cherries everie yeare that any doth, and yet blossometh well; the fruit also is nothing answerable to the name, being not great, of a pale yellowish red, neere the colour of amber, and therefore some have called it the Amber Cherrie." There is no doubt it is this variety also which is described by Meager under the name of "Cilliegeberrylin," which he says is "as big as an indifferent Apple." The Germans ascribe its introduction on the Continent to the Earl of Murray, who had a seat at Menin, in Flanders, whence it was taken into Germany by M. Seebach, colonel of an Austrian regiment of cavalry, and who received it from Lord Murray's gardener under the name of Quatre à la Livre. The leaves are a foot, and sometimes 18 inches long.

**Berberis vulgaris** (*D. P., Lancaster*).—As you appear to be particularly interested in the Barberry, the following will perhaps in some measure meet your wishes, but we cannot undertake to "tell all about it," especially in the form of a reply. It is a native of the East, and is noticed by the earliest Arabian writers as the Berberys. This was accepted by Linnæus for the generic name. The specific name, *vulgaris*, common, needs no explanation. Bauhin says its English name was Piridge, and we know that Pirige was the Anglo-Saxon for a Pear tree. But Gerard and others of our early herbalists say it was called the Piperidge, or Piperidge tree, and this may have been derived from the Norman, for *Pepin* is a pip, and *rouge*, red. Parkinson, writing later, says, "Many others do call it Berberis, and so the generall vote goeth now-a-days." The flowers are offensive to the smell when near, but at a short distance their fragrance is extremely fine. The fruit is of a most agreeable acid flavour, cooling, and good to quench thirst in fevers, and, boiled with sugar, makes an excellent preserve. The berries are also used as a dry sweetmeat in sugar plums, and the juice to flavour sugar comfits; they are cooling, astringent, and antiscorbutic, and are said to be of great use in bilious affections, diarrhoea, and all cases where heat and acrimony prevail. Though used formerly, and highly spoken of by some old physicians as performing marvellous cures, they are now entirely expelled from modern practice, it having been found that any medicinal uses which existed in the acid of the Berberry were equally met with in other fruits, and hence the Currant is the only one which has been retained in the pharmacopœas. The bark of the root and inner bark of the stem afford a colour which will dye linen or cotton a fine yellow, with the assistance of alum. In Poland they dye leather of a most beautiful yellow colour with the bark of the root, and it is said to be from this root that the fine yellow of morocco leather is obtained. This colouring property is owing to a peculiar crystallisable principle, which has been named Berberin; and which is said, in a dose of from one to ten grains, to be tonic and purgative. This principle has been ascertained to possess alkaline properties. The bark of the Berberry, taken as a decoction in ale or white wine, is said to be purgative, and to have proved highly efficacious in the cure of jaundice; hence, in some parts of the country, we have heard the plant called the Jaundice Berry. A popular opinion exists throughout Europe that the Berberry should never be allowed to grow in proximity to Wheat, from the power it has of communicating blight to the plant and rendering the ears abortive. A singular circumstance is observable in the stamens of the Berberries, and particularly that of the common Berberry. They are all bent back to each petal, the concave tips of which shelter the anthers. No agitation whatever of the branch will have any effect on them; but if the inside of the filaments be merely touched with a small bit of stick, a pin, or a needle, they instantly spring from the petals, and shake the pollen against the stigma. This irritability does not exist on the outside of the filaments, nor in the anthers; and if the stamen is bent towards the stigma by the anthers only, no such action is exhibited. From this it is evident that the sudden spring of the stamens is owing to a high degree of irritability in the side of the filament next the ovary, by which, when touched, it contracts, that side becomes shorter than the other, and, consequently, the filament is bent towards the ovary. This irritability is perceptible in the filaments of flowers of all ages. If the ovary is cut off, the filaments will still contract, and, nothing being in their way, will bend quite over to the opposite side of the flower. After irritation the stamens will return to their original place, and, on being touched again, they will contract with the same facility as at first. These anthers bent back and sheltered from rain in the concavity of the petals, would probably never reach the stigma, and thereby propagate the species, were it not for this wonderful irritability; there they remain till some insect, coming to extract honey from the base of the flower, thrusts itself between the filaments, and, almost unavoidably, touches them in their most irritable part: the anthers rise and distribute the pollen on the stigma, and thus impregnation of the ovary is accomplished.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*F. C. Weavers*).—2, *Kerria japonica* flore pleno; 4, *Resembles Pelargonium graveolens*; 5, *Phyllocactus Jenkinsonii*. The others were not recognisable. (*W.*).—The shoot with two or three leaves is quite insufficient for identification. (*B. J. B.*).—*Viburnum Lantana*, the Wayfaring Tree. (*J. Gilbert*).—*Prunus Padus*, the Bird Cherry. (*Y. R.*).—1, *Spiraea prunifolia* flore pleno 2, *Prunus Padus*; 3, *Berberis Darwinii*.

## COVENT GARDEN MARKET.—MAY 12TH.

TRADE improving, and with good supplies prices remain easier, Strawberries alone maintaining their advance.

## FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	½ sieve	2 0 to 3 6	Peaches .. .. .	per doz.	6 0 to 20 0
Canadian .. ..	barrel	12 0 20 0	Pears, kitchen ..	dozen	0 0 0 0
Cobs, Kent .. ..	per 100 lbs.	27 6 30 0	dessert .. .. .	dozen	0 0 0 0
Figs .. .. .	dozen	0 0 0 0	Pine Apples English ..	lb.	1 0 1 6
Grapes .. .. .	lb.	2 6 6 0	Plums .. .. .	½ sieve	0 0 0 0
Lemons .. .. .	case	2 6 4 0	St. Michael Pines ..	each	4 0 6 0
Melon .. .. .	each	3 0 5 0	Strawberries .. ..	per lb.	2 0 6 0
Oranges .. .. .	100	4 0 6 0			

## VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	dozen	1 0 to 0 0	Lettuce .. .. .	dozen	1 0 to 1 6
Asparagus .. ..	bundle	2 0 5 0	Mushrooms .. ..	punnet	0 6 1 0
Beans, Kidney ..	lb.	1 6 0 0	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red .. ..	dozen	1 0 2 0	Onions .. .. .	bunch	0 3 0 0
Broccoli .. ..	dozen	0 0 0 0	Parsley .. .. .	dozen bunches	2 0 3 0
Brussels Sprouts ..	½ sieve	0 0 0 0	Parsnips .. .. .	dozen	1 0 2 0
Cabbage .. .. .	dozen	3 0 4 0	Potatoes .. .. .	cwt.	4 0 5 0
Capiscums .. ..	100	1 6 2 0	Kidney .. .. .	cwt.	4 0 5 0
Carrots .. .. .	bunch	0 3 0 4	Rhubarb .. .. .	bundle	0 2 0 0
Cauliflowers .. ..	dozen	2 0 3 0	Salsify .. .. .	bundle	1 0 1 6
Celery .. .. .	bundle	1 6 2 0	Scorzonera .. ..	bundle	1 6 0 0
Coleworts .. ..	doz. bunches	2 0 4 0	Seakale .. .. .	per basket	1 0 0 0
Cucumbers .. ..	each	0 3 0 6	Shallots .. .. .	lb.	0 3 0 0
Endive .. .. .	dozen	1 0 2 0	Spinach .. .. .	bushel	3 0 4 0
Herbs .. .. .	bunch	0 2 0 0	Tomatoes .. ..	lb.	1 0 3 0
Leeks .. .. .	bunch	0 3 0 4	Turnips .. .. .	bunch	0 4 0 0

## PLANTS IN POTS.

		s. d.	s. d.			s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0	to 18 0	Ficus elastica ..	each	1 6	to 7 0
Arbor vite (golden)	dozen	0 0	0 0	Ferns, in variety ..	dozen	4 0	18 0
„ (common)	dozen	6 0	12 0	Foliage Plants, var.	each	2 0	10 0
Arum Lilies .. ..	dozen	9 0	18 0	Genistas .. ..	dozen	6 0	12 0
Azaleas .. .. .	dozen	24 0	42 0	Hyacinths .. ..	dozen	0 0	0 0
Begonias .. .. .	dozen	6 0	9 0	Lilies of the Valley, in			
Calceolaria .. per	dozen	6 0	12 0		pots, per doz.	13 0	18 0
Cineraria .. ..	dozen	6 0	10 0	Marguerite Daisy	dozen	8 0	12 0
Cyclamen .. ..	dozen	12 0	24 0	Myrtles .. .. .	dozen	6 0	12 0
Cyperus .. .. .	dozen	4 0	12 0	Palms, in var. ..	each	2 6	21 0
Dracena terminalis,	dozen	30 0	60 0	Pelargoniums, scarlet,	doz.	4 0	8 0
„ viridis .. ..	dozen	12 0	24 0	Primulas, single,	dozen	0 0	0 0
Erica, various ..	dozen	12 0	24 0	Solanum .. .. .	dozen	0 0	0 0
Euonymus, in var.	dozen	6 0	18 0	Spiræa .. .. .	dozen	6 0	12 9
Evergreens, in var.	dozen	6 0	24 0	Tulips .. .. .	12 pots	0 0	0 0

## CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. ..	12 bunches	2 0 to 4 0	Marguerites .. ..	12 bunches	3 0 to 6 0
Anemone .. ..	doz. bunches	2 0 6 0	Mignonette .. ..	12 bunches	3 0 6 0
Arum Lilies .. ..	12 blooms	4 0 6 0	Narcissus, various 12	bunches	2 0 6 0
Azalea .. .. .	12 sprays	0 6 1 0	Pelargoniums, per 12	trusses	0 9 1 0
Bouvardias .. ..	per bunch	1 0 1 6	scarlet, 12 trusses		0 4 0 8
Camellias .. ..	12 blooms	1 6 4 0	Paeonies, various 12	blooms	1 6 2 6
Carnations .. ..	12 blooms	1 0 8 0	Roses (indoor), per	dozen	1 0 3 0
Chrysanthemums 12	blooms	0 0 0 0	Tea .. .. .	dozen	0 9 2 0
Cowslips .. ..	doz. bunches	1 0 2 0	red .. .. .	dozen	2 0 4 0
Cyclamen .. ..	doz. blooms	0 0 0 0	Primroses, Yellow,	dozen	
Daffodils .. ..	12 bunches	1 6 6 0	bunches .. .. .		0 6 0 9
Epiphyllum .. ..	doz. blooms	0 0 0 0	Primroses, Double	White,	
Encharis .. ..	per dozen	4 0 6 0	dozen bunches ..		0 0 0 0
Gardenias .. ..	12 blooms	1 0 3 0	Spiraea .. .. .	12 sprays	0 6 1 0
Hellebore .. ..	doz. blooms	0 0 0 0	Tropeolum .. ..	12 bunches	1 0 3 0
Hyacinths, Roman, 12	sprays	0 0 0 0	Tuberose .. ..	12 blooms	1 6 2 0
Dutch .. .. .	per box	0 0 0 0	Tulips .. .. .	dozen blooms	0 3 0 6
Lapageria, white, 12	blooms	0 0 0 0	Violets .. .. .	12 bunches	0 0 0 0
Lapageria, red ..	12 blooms	1 0 2 0	Czar, Fr., ..	bunch	0 0 0 0
Lilac .. .. .	per bunch	2 0 6 0	Parma, French, per		
Lilium longiflorum, 12	blms.	6 0 9 0	bunch .. .. .		3 0 5 0
Lily of the Valley, 12	sprays	0 9 1 0	Wallflower .. ..	12 bunches	2 0 4 0



## THE FUTURE OF FARMING.

FERTILITY well sustained in soil that is clean, well drained, well divided by fine stones or suitable substitutes, must be regarded as an indispensable fundamental point in the future of farming. How best to impart fertility to the soil is a matter to which more and more attention is being given. Economy with efficiency is a combination to which our best efforts must be given; we must know what elements of plant food are required in the soil, and also how we can supply the want. It is true enough that farmyard manure contains all the elements of fertility required to store the soil with nutriment, but having regard to the cost of its manufacture and use, we are bound to inquire if we cannot in some measure avoid this heavy outlay. Think what it involves—cattle, yards, litter, food, attendance, the risk of



losses, besides the subsequent heavy labour of removal and distribution with men, horses, and carts. Do not the numerous experiments with chemical manures by the Royal Agricultural Society and other associations all point to a recognition of the common want of portable, cheap, efficient fertilisers? Yet efforts to ascertain and to show unmistakably which are the best manures for our purpose meet with opposition both active and passive—active from interested dealers in special manure mixtures, and—strange to say—passive from very many of the class they are specially intended to benefit—the farmers. This is a matter to which, however, success is quite certain to attract attention and respect, and eventually to obtain full and ample recognition. Let those who lag behind and clog the wheels of useful progress learn as they must do how unmistakably they are being left behind in the race, and they will, simply because they must, bow to the inevitable, and adopt the ways and means so generously placed at their disposal by those whom they once regarded with suspicion and doubt.

The soil as a medium for conveying food to plants, and as a substance in which the roots of plants grow, spread, and cling to, must have more thoughtful intelligent attention. The nonsensical notion that soil requires periodical seasons of rest must be got rid of as being altogether fallacious. There must be no more long fallows in the ordinary course of farming; there never has been any good reason for them excepting only after two or three consecutive wet summers. We have only to keep down weeds, to keep the soil open and well broken up, to keep it well stored with fertility, and we may go on cropping year after year without giving heed to four-course shift or other local methods of crop rotation. But there must be no fitful haphazard work; our aim must be steady, our purpose sure. We *must* keep the soil clean as a garden; we *must* relieve "wet" land by drainage; we *must* apply manure to it every year. Instead of bringing the soil to the verge of exhaustion by over-cropping we should so sustain its high condition that each crop may be as full and abundant as is possible. Mark the term; dwell upon it, reader. Ask yourself if you really know how much increase the land may be made to yield. Is it the language of enthusiasm which tells us of eight or ten quarters of Wheat per acre? of twelve quarters of Oats being gathered off the same area of land? of twenty or thirty tons of Potatoes? of fifty to seventy tons of Mangold? A few days ago we called on a tenant who holds a small farm of only ninety acres, and we found him busily engaged in preparation for sowing Mangolds. The furrows were ready, and farmyard manure was being carted and spread in them, but the farmer could only afford one-fourth the quantity which we know to be necessary with an addition of 6 cwt. per acre of chemical manures. He, however, had no such manures, nor had he means to procure any. The result will be strictly proportionate—a meagre crop of small roots of little value for any purpose. How are we to decide between such a tenant and his landlord? Such a man feels the pinch of hard times severely. He comes to us for relief by a reduction of rent. In point of fact, he had a reduction some eighteen months ago, and he asked for another last Michaelmas. If he had the land almost rent free he would do very little good with it. Clearly such a man ought never to have had the farm. To turn him out now seems hard, but is it fair upon the landlord that he should have to suffer for the incompetence of an ignorant tenant? Suffer loss he must whatever is done, for if the tenant leaves and the farm is taken in hand, it is so exhausted that it will be a work of years to reclaim it and bring it into really high condition. Yet if the tenant remains he can do no good, and he will be always on the verge of bankruptcy.

It was advisedly that the soil was mentioned as a medium for conveying food to plants, for it ought never to be forgotten how largely plant-growth depends upon air, rain, and solar heat. Puny indeed are our best efforts in comparison to the gigantic operations of Nature, and every farmer ought

to know enough of what occurs in the economy of Nature to regulate his own work thereby. Then will the full value of green crops as a means of imparting fertility to the land be understood, and the culture of such crops will become general. This is a point of immense importance for the future, for the sowing and ploughing-in of such catch crops as White Mustard should form part of the process of reclaiming land that is both foul and poor. Clean the land in autumn if possible, but at the latest as early in spring as the weather admits of. Sow it with White Mustard 20 lbs. of seed per acre, give the Mustard a dressing of a hundred-weight per acre of nitrate of soda, plough in the crop when the seed pods are visible, and you will impart a rich store of fertility to the soil.

(To be continued.)

#### WORK ON THE HOME FARM.

With the dry weather corn-hoeing has been well done, and we now hope to see much less Charlock this summer. In some fields weeds were so scarce that some of the men were set forking out couch grass upon foul land; the use of forks and hand-picking for this work has to be resorted to wherever the grass has spread into thick beds, in order to eradicate it; the horse hoe, or whatever similar implement is most in local favour, being afterwards passed up and down and across the field, followed by harrows as many times as is found to be necessary. Sometimes a Cambridge roller is useful to crush the soil and to enable the harrows to pull out the twitch. Let all possible pains be taken with such work now, and as soon as the soil is as clean as we can render it by such means, sow it with whatever crop is considered most desirable. If it is very poor we cannot do better than sow Mustard for folding or ploughing in; if for permanent pasture we must take especial care to have the soil so well stirred and broken up as to make a fine deep seed bed. Folding of the breeding flock upon Rye is almost finished; the ploughs followed the folding as closely as possible, and harrows were used at once after the ploughs to break up the soil before it became hardened by exposure, our object being to sow Swedes there as soon as we can.

Stone and wood picking followed by the bush barrows and rollers has left the grass land in good order for the hay crop. Our most forward meadow is a large one upon the whole, of which old sheep were fattened in folds last autumn. The strong rich growth of herbage now affords pleasing evidence of the beneficial effects of the sheep-folding. The principal Grass in this meadow is Cocksfoot, and it certainly affords a greater bulk of hay and a more abundant aftermath than any other meadow we have. Sharp frost at the beginning of the month cut off some of the early growth of Clover, and gave a severe check to spring corn, especially Barley. We have a large field of Pacey's Perennial Rye Grass at an off farm, for which manure could not be spared, about which we found the bailiff somewhat puzzled. An inspection showed that the land requires draining, and we have decided to have the grass eaten off, to put in drains, to pare and burn the surface in July or August, then to break up the soil and sow Winter Oats in September with our usual half-dressing of home-mixed manures. Another half-dressing will be given early in the following spring, and we shall then confidently expect a profitable crop upon what is now the poorest field of the farm. Many farm buildings are now being put in repair, but none of the work is of an expensive nature. It consists rather of such things as broken tiles, plaster, fences, doors, and windows; walls with a few bricks loosened, broken gates, feeding cribs, and such things. Paint and tar will be used for all bare woodwork, both to protect the property and to give it a neat and finished appearance.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1886.		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	in.	
Sunday .....	2	30.401	47.6	41.5	E.	47.4	55.8	32.6	91.7	25.2	
Monday .....	3	30.429	51.2	43.8	S.E.	47.2	63.9	37.0	102.7	28.8	
Tuesday .....	4	30.445	49.9	44.8	E.	48.0	66.9	35.2	100.6	26.4	
Wednesday ...	5	30.497	52.7	46.3	N.E.	48.4	70.2	36.9	102.7	29.1	
Thursday ....	6	30.359	61.4	48.7	N.	48.8	74.7	43.7	108.4	35.3	
Friday .....	7	30.212	63.6	51.8	N.W.	49.5	75.3	44.8	108.1	36.9	
Saturday ....	8	30.063	62.8	54.1	N.W.	51.8	69.4	52.7	88.1	46.8	
		30.344	55.6	47.3		43.7	68.0	40.4	100.3	32.6	

#### REMARKS.

2nd.—A glorious spring day, with cool E. wind.  
 3rd.—Fine and pleasant.  
 4th.—Hazy till 10 A.M.; fine, bright, and warm after.  
 5th.—Hazy in first part of morning; fine and warm after.  
 6th.—Fine summer's day.  
 7th.—Fine, but not bright.  
 8th.—Overcast all day.  
 A very fine, dry, and warm week.—G. J. SYMONS.





## COMING EVENTS

20	TH	Royal Society at 4.30 P.M.
21	F	Crystal Palace Summer Show (2 days).
22	S	
23	SUN	4TH SUNDAY AFTER EASTER.
24	M	Linnean Society Anniversary Meeting at 8 P.M.
25	TU	Royal Horticultural Society—Show of Pot Roses and Azaleas. Frit
26	W	Society of Arts at 8 P.M. [and Floral Committees at 11 A.M.]

## FRESH AND FADING FLOWERS.

**N**OTHING is so tantalising to the decorator as to see the flowers he or his assistants set up, withering in a day or a few hours. Some of the flowers may be as fresh as ever, but those that droop so spoil the effect that patching becomes necessary, which, however much it may improve appearances, is not satisfactory. That some plants produce foliage and flowers of a more enduring character than others is well known. I do not

refer to this now so much as to flowers, whatever may be their persistence and enduring nature, fresh until the time of their natural decay. Some flowers are so generally employed that it is a matter of the greatest importance to so grow and treat them as to implant enduring qualities. This subject is well worth the attention of those who have to provide flowers for cutting and decoration in quantity and successionally in private establishments, whilst to growers for sale it is absolutely essential. The flowers that reach the decorator in the metropolis and large towns are some time in transit to the markets after they are cut by the grower, they have to remain until made up, then often have to be sent long distances, and yet they arrive as fresh as, if not fresher than, many that are furnished by home establishments. It is evident that one knows the best treatment to insure lasting qualities, and the other does not grow and treat the flowers in the manner best calculated to promote enduring properties.

The growers of flowers under glass for cutting must realise to the full the absolute necessity of the plants being grown in the greatest possible light in every stage, more particularly from the time of the flowers being visible to their expansion. The plants are then sturdier, their growth fully solidified, the foliage and flowers are stouter in texture, and the colours more highly intensified. They are not soft in texture and flabby as plants and flowers are that are grown at a distance from the glass and probably accompanied by shade. The endurance of flowers in a cut state depends much upon the way in which they have been produced. I know the difficulties of gardeners in many private establishments in having to supply foliage and flowers for continuous decoration with means altogether inadequate to a supply with the desirable enduring powers of those produced and supplied by the trade. I can cordially sympathise with such in their difficulties, and so will those who are chagrined at their flowers not lasting so long as other people's, when they come to understand the difference that exists in the growing of flowers that last and those that do not keep fresh beyond a few hours. There is nothing like trial for solving doubts, and prejudice is banished by experience.

Foliage and flowers for cutting cannot be grown in too much light, and this in all the stages of their development, the plants standing in positions where every ray from dawn to dusk reaches them. A sturdy, robust, character of plant must be obtained ere the persistent spray of leaves and bloom

is gained. It is the way to secure plants that will bear the dry atmosphere and cold draughts of rooms. The endurance of sprays of foliage and bloom, and of flowering or other plants, depends on their being well managed in the growing stage. It is the alpha and omega of the decorative value of plants. High culture, thorough assimilation of food supplies by exposure to the fullest amount of light and air consistent with steady progressive growth, is the way to secure floriferousness, size, substance, and bright colour of blooms. There are, of course, exceptions, as some grown in a high temperature and in the dark, like Lily of the Valley and Lilac—conditions diametrically opposed to those usually found indispensable to persistence—remaining fresh and crisp when cut or on the plant when exposed to a drier and cooler atmosphere. Such, however, are exceptional, and by far the greater number of plants grown under glass have endurance in flower in proportion to the way in which they have been managed through the time the flowers have been developing. Flowers of a smooth or waxy nature, such as Camellias and Hyacinths are much more lasting than those of thin soft texture.

Fern fronds and other foliage employed for mixing with flowers must be grown "hard"—i.e., in plenty of light and air, or their persistence is doubtful. Everybody likes to see Ferns with deep green foliage, also Palms for decoration, and there is no objection to it provided it can be had without taking from the endurance when cut; but this can hardly be effected without feeding with soot or other manure rich in ammonia, and even then the foliage is much paler than under similar condition of culture in shade, and such are of much less value for decorative purposes than those that have been specially prepared by exposure to the greatest volume of light in all the stages of their growth. The persistence of foliage employed for mixing with flowers is in exact proportion to the measure of good management in the growing stage. How frequently is the appearance of otherwise unexceptional vases of flowers spoiled by shrivelled Maidenhair? It is the result of taking it from plants in close, moist, shaded houses. It looks beautifully green under the conditions it was produced in, but is poor when exposed to the dry atmosphere of the dwelling house. The paler-coloured harder-textured leafage only is suitable for mixing with flowers, and to my thinking accords better with the bright colours than very deep green does.

Though growing flowers for endurance is of great importance, yet it is not everything. The flowers beyond being well managed in the growing stages must be properly treated afterwards if they are expected to last. All persons experienced with cut flowers know that those stood in water for a few hours after being cut and before they are made up, will last longer in bouquets, buttonholes, or in any other way that necessitates mounting. Some cut flowers and lay them in baskets or trays, keeping them out of water for hours before they are put in vases, or it may be packed for sending away, and then feel hurt when a complaint is made that the flowers want arranging afresh, or that they have travelled badly. The point is to cut them fresh and keep them fresh. Once let the flowers get limp, and then it takes a long time to restore their crispness, if, indeed, they are not parting with more moisture through the dry atmosphere than is being supplied to them by the withered stems and dried up channels. Cut in the morning and if the flowers are not wanted until evening or at once, be the purpose what it may, place them in water without loss of time, and keep them there until wanted. Those having next to no flower stem, as Allamanda, Stephanotis, &c., should be immersed in water altogether, and the more water they absorb the better they resist a dry and warm atmosphere. It is called "setting" by the bouquetists, and well it answers its purpose. Adiantums and all Ferns should be put in broad shallow dishes with an inch or so of water, so as to admit of the stems being immersed and the fronds or pinnules lying on or in the



water, cold water being the best, and the best position a cool and not very light room. So treated the endurance of the flowers would surprise many people, and make vases enjoyable that are often rendered disappointing by drooping and falling petals.

To retain the petals of flowers all decorative florists practise gumming, not of the flowers that are cut alone, but those retained for beauty on the plants. A slight touch of clear gum in the centre of a Pelargonium flower, for instance, seals the petals, and it requires very violent shaking to remove them, while if the work is expertly done the gum is quite invisible. The crowded masses of flowers on market plants is largely due to this process of gumming—that is to say, by that means the early flowers are retained until the later buds expand.—G. ABBEY.

### NOTES ON VINES AND WATERING FRUIT BORDERS.

A FEW days ago I was met by an amateur—a gentleman in a town not fifty miles from where I write, with the request “Come and see my Grapes,” and thither I went. Late last autumn his Vines had been carefully lifted, the drainage had been rectified and covered with turves grassy side down, and the Vines replanted in new soil, consisting of good turfy loam, to which one-fifth of horse droppings, old lime rubble, and wood ashes respectively had been added, and the whole well mixed. The roots were spread out all over the border, with a slight inclination downwards from the base of each Vine, and any that had become damaged in the process was cut clean off at the point of injury with a sharp knife. Incisions were made along the bare portions of the principal roots, and a few inches up the stems of the individual Vines to cause the emission of young roots, and then covered to the thickness of 6 inches with prepared compost, a surface dressing of short dung of half the thickness indicated being laid on the border. After this the whole received sufficient tepid water to settle the soil about the roots, which, like those of the Peach and Apricot trees in the orchard house close by, are confined to inside borders. Vines thus treated and allowed their own time to push into growth this spring could not very well do otherwise than break satisfactorily. They were carrying from fifteen to eighteen medium-sized bunches each, which were being thinned at the time of my visit, and which numbers, together with several of the lateral shoots, which were much too close to each other (9 inches in some cases), were recommended to be reduced forthwith to from 9 to 12 bunches according to the strength of each Vine and the size of the bunches, and the shoots to from 15 to 18 inches apart.

My friend's hobby being “fruit-growing under glass,” he has this year taken the management of the trees, &c., into his own hands, and being of a scientific turn of mind conceived the idea that by persistently stopping the non-fruit-bearing shoots or laterals and allowing those carrying bunches to make free growth beyond the latter, the flow of sap would thereby be directed into the fruit-bearing shoots, and that better results than could otherwise be obtained would be secured. I told him that the shoots and leaves would become overcrowded in a very short time, and so prevent the proper development of the latter as well as the ripening of the wood; and that by following a judicious course of pinching the laterals and sub-laterals larger and thicker leaves, having buds at their bases as large and firm as Filberts at pruning time, would be produced. My amateur and scientific friend's rejoinder was to the effect “that the leaves being the lungs of the Vines, he therefore concluded that the more leaves they had, irrespective of size or texture, the better it would be for the Vines and the crop.” However, acting upon my advice he has decided to treat a couple of the Vines in accordance with his own ideas, and to subject the remainder to the process of pinching the laterals and sub-laterals, and to compare the results.

Leaving the vinery and entering the adjoining orchard house the condition of the trees and the prospect of securing therefrom a crop of fruit this season were anything but encouraging, the trees suffering most severely through inadequate supplies of water. What little growth they made last year had been trained in the usual way to the back wall, and that of the central standard trees to a trellis fixed to the roof within 24 inches of the glass, which consists of 24-inch squares, secured to the purlines by small clips of copper and tacks, two clips and four tacks being used to each square. This done the borders containing the roots had a good mulching of short dung and an “application” of water, since which time (Christmas) no water had been given at the roots. This circumstance led to an inquiry being made as to the supply of water at

command, as well as the quantity given at the roots at each watering. The supply was good—namely, a tank,  $4\frac{1}{2}$  feet square, underneath the floor in one of the houses, and supplied by rain water conducted thither by gutter and stack pipes from the roofs of the glass and other houses; and it was remarked that this tank had never been empty since it was first filled, an admission which showed conclusively how inadequate were the supplies of water given at the roots, not only of the trees in the orchard house, but also of the Vines during their growing season, inasmuch as the tank when full of water would contain only sufficient for giving one house one fairly good watering. From this date (the middle of May) until the fruit has approached maturity such applications should be repeated two or three times a month according to the weather, and that the Vines, as well as the Peach trees, &c., would be considerably benefited and the results improved if a good surface dressing of Thomson's manure was laid on the borders prior to every fourth watering. This advice my friend has promised to follow, together with that of making a free use of the syringe on the trees morning and afternoon before and after they have set their fruits, and until the latter (Peaches, Apricots, and Plums) begin ripening, when syringing the trees and the house should be discontinued, and abundance of air admitted on all favourable occasions, leaving the ventilators open a few inches at night.

The importance of the facts and of the manner in which the cultural details indicated above are attended to must be my excuse for committing them to paper, in the hope that they may prove useful to readers of the Journal, as the case cited is but one of many, and by bringing the facts stated above under the notice of the responsible parties disastrous results may be avoided. I may remark that here from the middle of May till the middle of September we water our borders every ten days or thereabouts, but after the last-named date they require less frequent supplies at the roots. The borders prior to the house or houses being kept close receive a surface-dressing of horse droppings to the thickness of 3 inches, which once during the season (say May or June) is renewed. Our chief range of vineries is 128 feet long and 17 feet wide. This inside border, which, like the outside one, is well drained, receives about 5000 gallons of water at each watering—3000 gallons of clear water pumped and delivered from a large reservoir underneath the conservatory floor by one of Owen and Co.'s double-barrel force pumps, having  $2\frac{1}{4}$ -inch delivery hose attached, and 2000 gallons of liquid manure following immediately after from the manure tank in connection with the dung pound, where a goodly supply of stable dung (including a large percentage of horse droppings), in several stages of decomposition, is always at hand, and which is watered over with the pump and delivery hose indicated every time the supply is exhausted. This washes the substance of the heated dung into the tank, whence at a temperature of from 80° to 95° it is conveyed in water-barrows direct to the Vine and Peach borders in quantities as stated above. There need be no apprehension of the roots of Vines and Peaches sustaining any injury through copious supplies of undiluted liquid manure, had from such a source as that just described, being given to the borders in which they are growing.—H. W. WARD, *Longford Castle*.

### GLOXINIAS PLANTED OUT IN FRAMES.

IN 1878, during the Paris Exhibition, attention was drawn to the splendid collection of Gloxinias grown by M. Léon Duval of Versailles, and who annually grew 20,000 plants, Gloxinias being M. Duval's speciality. The plants have become very popular, and deservedly so; few are more showy, more floriferous, or easier of cultivation, thus being adapted to the requirements of nearly all classes of horticulturists; for it is not absolutely necessary to have a greenhouse to accommodate them, as I shall presently show. Who can fail to admire their wealth and richness of colouring, the bold appearance of their flowers, and their rich velvety green foliage? We have them in nearly all shades, from the pure white of Mont Blanc to the deep purple of Prince Arthur, the glowing crimson of Vesuvius and the rosy pink of Rose d'Amour. We have them self-coloured, bicoloured, and maculated, erect-flowered, semi-erect, and drooping, and to the impartial admirer they are all equally beautiful.

Natives of tropical America, they require a certain amount of artificial heat for their successful culture, but it is not essential that the temperature should be excessive, a moist, genial, regular warmth being most adapted to their requirements. Although their roots are fine and hair-like, yet they are rather gross feeders; indeed, owing to the delicate appearance of their roots they are apt to be very imperfectly nourished by those not versed in their requirements. The Gloxinia also, I think, derives a considerable amount of sustenance through its large porous leaves, and that may account in no small degree for the astonishing



results to be obtained when growing under the conditions indicated at the head of these notes. It also requires a constantly moist medium for its roots. It is true they need not be allowed to get very dry when they are grown in pots, but the fluctuations in the degree of moisture are often very great unless they are in very careful hands. And as it is rather a gross feeder, therefore when it is planted out in a suitable medium it can, as it were, attend to its own requirements, and is not so much at the mercy of the cultivator. It must not be supposed that I am advocating frame culture in preference to pot culture. For all ordinary decorative purposes the Gloxinia must be cultivated in pots, and I have had a full measure of success in that way; but when a quantity is required for cutting purposes I strongly advocate the planting-out system. Having devoted an ordinary two-light to that purpose every year since 1878, I do not write without experience in the matter.

Last year my frame was a failure, but that was not owing to the system, it was owing to very old and exhausted corms having been planted. Some were seven and eight years old, and I wished to try them in the frame for the sake of experience, as I was sure they would do no good in pots. Seedlings raised the previous autumn give excellent returns, but if they are twelve months old when planted, instead of three or four months, then the size, substance, and quantity of the flowers as compared with those the same age and same varieties in pots is something extraordinary. The most general method now adopted for raising a stock of Gloxinias is from seed, but if it is desired to keep certain varieties already in stock, then they should be propagated from leaves, or by division of the corm when starting into growth. When the latter plan is adopted the cut surface should be dressed with lime to dry up the sap. I have sharp sand placed around them when being potted. If seed is sown in pots, pans, or boxes containing a couple of inches of fine peat with a liberal addition of sand, and placed in an early Cucumber frame at the end of January or beginning of February, and kept growing freely by pricking off and potting until they are established in 4 or 4½ inch pots, they will commence flowering about June, some will be later. The seed should be sown thinly and evenly, and barely covered with the soil. A piece of glass placed across them will prevent too rapid evaporation. If a piece of glass is not handy a newspaper will be as well or better. This may be kept over them until the seed germinates, when the seedlings should be gradually inured to the light, and only be shaded from strong sunshine; and if grown as recommended the strongest of them will now be ready for planting out.

As the present time is favourable in every respect, numbers of frames being emptied of their contents and perhaps nothing else in particular to place in them, let those who require Gloxinias for cutting purposes try a frame, and I think they will not need to be reminded to do it again next year. A half-spent hotbed will be better than a new one, as there is a danger of the latter being too hot and steamy. Let an old bed be turned over, and if there be a gentle warmth it will be sufficient; allow it to settle for three or four days, then tread it down level, place on the frame, and having mixed a compost of two parts peat, one of leaf mould, and one of sand, place it in the frame to a depth of 4 inches, and plant the Gloxinias about 18 inches apart; water with a rose without wetting the foliage, leave a little ventilation, and shade from the sun's rays. In due season the flowers will appear, and will continue to be produced until the approach of winter. As the plants grow and come into flower great care must be exercised in watering. Be sure that they require water before applying it, and when it is being done pour it under the leaves and not in the centre of the plants, being very careful to avoid wetting the flowers.

So effective are Gloxinias grown in this way it is a marvel that some of our enterprising nurserymen or enthusiastic amateurs have not gone to the length of planting a house full of them. Carefully arranged at planting time, and the sides of the beds and stages draped Torenias, Thunbergias, Panicum, and Tradescantia, they would vie with the Orchid exhibitions and Amaryllis exhibitions; but as I think they are more essentially an amateur's rather than a nurseryman's flower, I shall hope to hear or read, ere the summer is over, of some lady or gentleman having the courage and enterprise to carry the above suggestion into effect, and thus have an exhibition of their own both beautiful and uncommon, and one also costing very little money.

In conclusion, I ought to say—and this is important—that the soil in which Gloxinias are planted or potted should not be pressed firm, but be kept loose and open as possible. For the guidance of those who would prefer to have a few select sorts instead of running the risk of having a batch of inferior varieties amongst seedlings, I append a list of few which I have found to

be of sterling merit and rarely surpassed for the quality of their flowers and richness of their colours:—Belford, Boule de Nieve, Charme de Lutece, Charles Dickens, Clytis, Gamos, Miss H. de Rothschild, Marquis of Lorne, Mr. Gladstone, Madame Patey, Madame Duval, Mont Blanc, Ne Plus Ultra, Princess of Teck, Prince Arthur, Rose d'Amour, Roxelane, Sir S. Northcote, Sang Goulois, Vesuvius, William Goldring, Prince Leopold, Madame Thibaut, and Rubens.—J. UDALE, *Elford, Tamworth.*

#### CHOU DE GILBERT AND CHOU DE BURGHLEY.

MR. ABBEY on page 292 described Chou de Gilbert as a Cabbage-Brussels Sprout, whilst "Tbinker" considers it—I speak from memory, for I have unfortunately mislaid the Journal of May 6th—a Broccoli-Brussels Sprout. Mr. Gilbert kindly sent me some plants last summer, and up to about six weeks ago I found it as Mr. Abbey describes it, and since then it has developed into a Broccoli-Brussels Sprout, or as I should feel inclined to call it, a Chou de Burghley Brussels Sprout. The sprouts, unlike the Brussels, are elongated, tapering in some cases to a sharp point, and the stems are well clothed from top to bottom with them. They are very delicious, being very marrow-like in flavour. Mr. Gilbert, I understand, has several types of this vegetable, and doubtless we shall hear of some more "Chous."

Chou de Burghley is very much improved. I have been cutting it in all stages of growth since November, and I have now about half a dozen, which are forming nice Broccoli heads inside their Cabbage envelopes. One I have retained for seed, for it is quite unique. It first developed several sprouts up the stem, which soon became miniature Broccoli, the flower not being hidden. These I cut and ate, keeping my eye on the head for about ten days, and to-day, May 12th, I removed gently the outer covering, and found within a perfectly formed white Broccoli. This is the right kind of sprouting Broccoli, if it can be perpetuated.—H. S. EASTY.

#### THE BOILER CONTEST AT LIVERPOOL.

THE following are the conditions of the boiler contest at the Royal Horticultural Society's Great Provincial Show to be held at Liverpool from Tuesday, June 29th, to Monday, July 5th, 1886 (inclusive):—

1, Competitions will be in three classes—viz:—

Class 1,	.. .. .	2000 feet.
" 2,	.. .. .	1000 "
" 3,	.. .. .	500 "

2, Each competitor to supply and fix his own piping and boiler, with all necessary fittings complete, at his own expense.

3, The Royal Horticultural Society will supply the fuel and the thermometers required for the contest.

4, All the hot water piping to be 4-inch (inside size). The chimneys not to exceed 20 feet in height, above the ground level.

5, The height of flow-pipe above top of boiler not to exceed 24 inches (overall) at boiler, nor to rise more than 6 inches in 100 feet.

6, Each boiler to have not more than 1 flow and 2 return connections.

7, The piping to be fixed as under:—

In the 500 feet, 3 flows and 3 returns; two deep.

" 1000 " 5 " 5 " "

" 2000 " 10 " 10 " "

with 3, 5, or 10 syphons or boxes respectively, at extreme end.

8, The total amount of piping in each case not to be less than specified.

9, The competition in each class will begin simultaneously, about mid-day, and last for 24 hours.

That for the 2000 feet on the first day of Show.

" 1000 " " second day of Show.

" 500 " " third day of Show.

10, In the case of boilers set in brick-work, they must be fixed and the brick-work dried by firing, and thoroughly cooled down again by the time of competition beginning.

11, Each competitor must be prepared to fix the thermometer on the part of the plain piping where directed, on the morning of the competition.

12, Every point for and against each boiler can be pointed out, and will be carefully considered by the Judges, and may be embodied in the report of the contest, so that competitors should carefully avoid anything that might tell against them.

13, Intending competitors must send in, at time of entry, full particulars as to heating power, &c., of their boilers, with price at which they are prepared to supply the public, which will be published.

14, One or more medals will be given in each class, if the Judges consider the competition worthy of such an acknowledgment.

Applications for space should be made on or before Saturday, June 12th, to Mr. A. F. Barron, Superintendent, Royal Horticultural Society's Gardens, Chiswick.

#### NOTES FROM MY GARDEN IN 1885.—No. 3.

##### GREENHOUSE.

I OFTEN quake when I am writing these notes lest someone who may not know the small extent of my garden, and, reading them, might be tempted to pay me a visit, and I should seem to him a deceiver, and be met by the exclamation, "For what in the world did he make all this fuss about his garden? I don't see anything very particular about it." Well,



so it may be; but having the assurance of so many that these brief notes are helpful to them I still venture to continue them. Small as it is, I do comfort myself with the notion that there is at all times something to see, and that when anyone does happen to come who knows what things are they do not go away quite disappointed, and very often carry away with them something they have not got, and thus even my little greenhouse, small though it is, becomes a source of content, and surprise is often expressed that I can do so much with so small a house. I think that one of the achievements I most pride myself upon is that of being able to grow things requiring such different treatment in the same house. One is often told, for instance, that it would be utterly useless to attempt growing hardwooded plants and Geraniums and other softwooded plants in the same house. Well, I have done so. I have at this moment some small plants of Azaleas covered with bloom and in full flower, while I have also decorative Pelargoniums, such as *Volonté Nationale* alba, *Madame Lemoine*, *Madame Thibaut*, &c., in flower. Instead of repeating a thrice-told tale I shall content myself with enumerating a few of those things with which I succeeded well, recording at the same time my failures.

Some time ago I was anxious to see whether I could grow a few of the cool house Orchids, and through the kindness of friends tried a few plants of *Masdevallias* and *Odontoglossum Alexandræ*. For the first two years, as our winters were very mild, they did well and flowered nicely. I felt that last winter would be a test, and so it has proved. The *Alexandras* succumbed, but the *Masdevallias* have stood it well, look healthy, and are now showing flower. I must therefore conclude that they will stand a low degree of temperature, and when placed in a shady part of the house where they can get moisture will do well, but that I must abandon the hope of growing *Alexandræ*. My only other Orchid, *Disa grandiflora*, has done admirably. I have now a pan of it which I can safely say is as fine and healthy as I have anywhere seen. It is in one of Mr. Dominy's Orchid pans, which has holes round the sides. Not only is there a presence of five or six spikes of bloom, but shoots are protruding from most of these holes. I have been able to give to several friends pieces of these plants, but I find it difficult to impress upon them the fact that *Disa* does not require heat, that it wants only peat and charcoal in lumps to be potted in, and that it does not care how much it is syringed. It is now just at the door of the house, getting all the air possible and not much sun—in fact, only getting it directly in the afternoon. Another pan that I have of it is not so vigorous, but this I account for by the fact that it has broken itself off into a number of plants, and its vigour has been expended this way instead of in flowering. Another season they will be planted in smaller pans, where they will not have so much liberty for breaking off into small plants. I find that they do not object to being divided, and, in fact, they are as easily grown as any plant I have.

Equally well did my *Lapagerias* succeed last year. Someone told me—I think in the *Journal*—that I should not go on much longer with them, and rather poked fun at my putting them into a box instead of pots. Nothing could be better than the way in which they did last year, giving me a profusion of bloom and growing very vigorously. I took care to shade them more than I did the previous year, when the hot sun took the colour out of rosea. Last season it was as well coloured as I could wish. Of course the plants are mere pigmies to those which are grown where there is abundance of room for both roots to run in and for the growth to ramble over. To me the great pleasure is that in a small house I can grow it successfully without disturbing the other plants.

I have little to say on the subject of hardwooded plants, of which I have only a few. My small plant of *Azalea imbricata* has flowered profusely, but I question if the flowers are so double as in former years. This is generally considered a miffy sort, and I find that it has been eliminated from some catalogues. It has done very well with me, and is remarkable for its doubleness. Indeed it would be difficult to imagine it to be an *Azalea* when a bloom is taken from it and mounted on a wire. *Empress of India* is very fine, but its colour is not so pleasing as some of the others. Among whites I see nothing to excel *Apollon* and *Madeleine*. I cannot say much about *Camellias*. My plants had grown too big for me, and I was obliged to get rid of them, exchanging them for smaller plants, and these have not done much in the way of flowering. I am rather inclined to think that I do not care quite so much for these very beautiful flowers as I used to do. Nothing can be more exquisite than the white varieties, but there is a preciseness about them which, combined with their lack of perfume, takes away something from them.

Amongst softwooded plants there have been some things which did very well, and are very great acquisitions; for instance, that capital decorative Pelargonium sent out by Mr. F. Perkins of Leamington, *Volonté Nationale* alba; in profusion of bloom, vigour of constitution, and purity of flower, it cannot possibly be excelled, and is without doubt the very best decorative plant of any sort that has been introduced for some years. For cutting it is invaluable, their flowers do not fall as the *Zonals* do, and hence are much more useful, while for the stage they are equally desirable. The plant is one mass of flower, and its whiteness contrasts well with the brighter coloured varieties. *Queen of the Belgians*, sent out by Mr. Cannell, is by far the best of the white *Zonals*, its flowers are well formed, substance is good, and the truss large. I do not think it would be possible to beat this in its class, what it might do out of doors I cannot say. Most of the white *Zonals* have a tendency to acquire a pinkish tint when exposed to weather, and whether this would do so I cannot say. Another most satisfactory Pelargonium has been *Madame Thibaut*, double Ivy-leaf. There is nothing in the way of hybridising that has been more wonderful in its results than the improvement of the old Ivy-leaf Geranium. When one recollects what a poor little insignificant

flower it was, and also the first attempts made to improve it, it is certainly amazing to see such a flower as this—a large handsome truss of flowers, as double as those of the ordinary double *Zonal*, and of a beautiful bright clear rose colour. Moreover, the plant is thoroughly an Ivy-leaf, and has the graceful habit they all possess, and gives its trusses of bloom very freely. Of Show Pelargoniums I have not much to say; they seem to have reached almost their limit; and taking those of the last three years, I do not think there is much advantage, while it almost seems as if the improvement in other sections, the *Zonal* Ivy-leaf, double and decorative, were driving them out of the field.

Bulbs have a large share in my arrangements, and I rely very much on them from time to time, beginning with Hyacinths and Tulips in spring on to Lilies in the autumn. I used at one time to grow some of this latter beautiful tribe for autumn decoration, but have somewhat diminished my culture of them in the house and increased it in the open border. I have hitherto done exceedingly well with Cyclamens, especially those of the Giant strain, but this year they were a comparative failure. I could not understand why, as I had, as far as I knew, in no way deviated from my former practice; but on examining them I found there must be something wrong, as there had been but little root-action. On inquiry I found that an alteration had been made in the compost used, and I have no doubt this was the cause. Amongst the prettiest of these is Sutton's Butterfly, a pure white. I have before now highly commended *Freesias*, but have been told I should find it difficult to get them to flower a second time. I have, however, I am happy to say, not found it so. I have had them blooming freely this year; in fact, more freely than a few imported bulbs that I tried. My pots of bulbs were baked in the sun before being put by, and I am inclined to think that this had something to do with it. I had also raised a number of seedlings, many of which flowered, but I saw nothing remarkable amongst them. No one sees them that is not delighted with their appearance and perfume, and if there be no more difficulty with them than I have experienced they ought to be grown in every greenhouse. I wish I could say the same of *Ixias*; they never do anything with me the second year, and even in the first year some of them are not satisfactory. Nothing could have been more vigorous and healthy-looking than they were until the flower stems were just on the point of opening, and then the foliage began to wither, and although the flowers expanded, yet the plants looked sickly. Why this is I am at a loss to imagine, especially as the kindred genera of *Sparaxis* and *Babiana* do very well with me. *Ornithogalum arabicum*, an old and almost forgotten bulb, is very useful and ornamental, and the flowers, pure white with their black bars in the centre, are very attractive, but why the shoots have not as yet made their appearance above ground I cannot understand; they seem sound, but they won't move. Another bulb that has puzzled me is *Milla biflora*; it does not seem in the least inclined to move, and yet one hears glowing accounts of it from those who have grown and flowered it. Can anyone tell the secret of growing it? Another old-fashioned bulb I tried last year for the first time, *Eucomis punctata*; it gave me great satisfaction, and is very enduring, the spike of flowers lasting some weeks. Tuberous *Begonias* were also a success, but everybody can grow them. I must own to a liking for the strain sent out by Messrs. Sutton called the Reading Beauty strain; the flowers are not so large, there is a good infusion of *Pearcei* blood in it I fancy, but they are very free flowering, and the flowers come away well from the heart of the plant differing in habit from the ordinary large-flowered varieties, which have now reached such a size as to amount in my mind to coarseness.

I know nothing that tends more to make my small house fresh and gay in the spring months than a few pots of a very common annual, *Schizanthus*. The seed is sown in July or August, and the plants pricked off into 32's, four in a pot, and their graceful slender growths and profusion of light and prettily marked flowers make them very desirable subjects. I have in larger places seen them suspended in baskets, and the flowers drooping over the sides and hanging down some 2 or 3 feet, but these are things I cannot attempt; "small boats must keep near shore," and yet, perhaps, some will say I attempt a great deal too much; perhaps so, but it pleases me. Besides these things that I have mentioned as specially deserving notice there are a number of odds and ends which from time to time make their appearance—*Primulas*, *Cinerarias*, *Aquilegias*, and so forth, but I have noticed those which I thought deserving of being mentioned for the encouragement of those who have small greenhouses, and in them, as in a small garden, selections, not collections, must be the rule. I might fill my house with a collection of one plant or another, and while they were in bloom they would look gay enough, but what when they were over? Whereas now from early spring to late autumn I have always something to gratify me, and few greenhouses, I fancy, give their owners more pleasure.—D., Deal.

#### SALADING.

A DAILY supply of salading for the table is a speciality here, and always gets the highest encomiums pronounced on it; but, from statements of many visitors entertained here, it is not so everywhere, and no doubt the gentlemen that brought about the salad contest were quite aware of the paucity in the daily supply of home-grown salad fresh gathered a short time before using. But to confine it entirely to Lettuce, as some are constantly trying to teach us, is entirely wrong. Salad plants are grown to be used in many ways, without the usual dressings and mixing in the salad bowl. Sutton's Crimson Flake is a good addition for the salad howl in the way of Chicory. Silesian, Brunswick, and Long Magdeburg Chicories are very wholesome and palatable eaten as Celery when well grown and blanched in a cool place. Rampions forms a very good adjunct



to the breakfast Radish, but are not often met with. A few sprigs of Tarragon give a warmth and flavour to the salad bowl far before Tarragon vinegar. When I lived with the late Mr. John Cotes of Woodcote he could at once detect the absence of Tarragon in his daily salad. I would advise my younger friends of the profession to keep salad-growing to the front and snpply the table well, and see if it is not appreciated equally as well as growing a good Orchid. A nice plate of fresh Cress, Radishes, Rampion, Lettuce, and the despised young Onion are liked by the family here. Let others say what they will, the Englishman will not be easily talked out of his salad, of green Onions and Lettuce; let the Frenchman prefer the Lettuce alone.—GEO. BOLAS, *Hopton Hall Gardens*.

#### CATTLEYA BOWRINGIANA.

UNDER the appropriate name of *Cattleya autumnalis* this Orchid was first shown by Messrs. J. Veitch & Sons at one of the Royal Horticultural



Fig. 71.—*Cattleya Bowringiana*.

Society's meetings in October last year, when a first-class certificate was awarded for it. The name then bestowed upon it was, however, only provisional, and now it has received the designation given above in honour of J. C. Bowring, Esq., Forest Farm, Windsor, a well-known amateur, who has been successful in several hybridising experiments. This *Cattleya* is an introduction from Central America, and is related to *C. Skinneri*, but its chief merit is found in the season at which the flowers are produced—namely, late autumn, and the plant is especially welcome on this account, as the number of *Cattleyas* in flower and Orchids generally is very limited at that period. The flowers do not exceed 3 inches in diameter as seen at present, the petals and sepals narrow, of a purplish crimson hue, the lip much richer crimson with a white throat. It flowers freely, the spikes bearing in some cases as many as ten flowers, which last well. *C. Bowringiana* must be regarded as a valuable addition to the genus, and one that will probably become very popular. The illustrations (kindly lent by Messrs. Veitch & Sons) show the character of the species faithfully, fig. 71 representing a truss of flowers, and fig. 72 a single flower.

#### MONK'S MANOR, LINCOLN.

MONK'S MANOR, Lincoln, the residence of R. Ruston, Esq., M.P., is charmingly situated on the hill near the fine old cathedral. From the grounds a good view is obtained of the city and the surrounding country

for miles. The gardens are attractively laid out, and the flower beds would have been very effective had not the severe weather made sad havoc among such plants as *Myosotis*, *Silenes*, and *Wallflowers*. Fruit trees are looking remarkably well and promising, the finely trained cordon and pyramid trees of Apples and Pears especially. The Peach trees in a long lean-to house are well set with fruit, and quantities of Strawberries are ripening there: the variety grown is *Vicomtesse Hericart de Thury*. The vineries, too, contain some vigorous canes. The hack wall of one house is covered with *Citrus decumana* (Shaddock), bearing a quantity of large fruits. In the Black Hamburg house may be seen a fine specimen of *Dendrobium Bensoniæ*, grown in a basket close to the roof with pseudo-bulbs 2 feet in length, and will shortly be a mass of bloom. Mr. Coulling appears to have hit upon the right plan of growing this fine Dendrobe, which is rather difficult to manage in some collections of Orchids. It is allowed to make its growth with the Vines, resting at the same season as they, and no doubt on account of the growth being made quickly and having a long period of rest is the chief cause of such good results.

In the stove, among the usual occupants, such as *Caladiums*, *Crotons*, *Ferns*, and *Palms*, &c., are many choice Orchids. Another plant to attract attention is a specimen of *Anthurium Andreanum* bearing large spathes 9 inches deep and 8 inches across, with a greenish tinge round the upper margin. The back wall is clothed with a dense mass of *Ficus repens*. A large plant of *Poinsettia* is growing amongst it, 13 feet high, with a very thick stem; a few of its scarlet bracts are still to be seen enlivening the dark green wall surface. Among the Orchids growing and flowering well are *Dendrobium Deari*; with growth 2 feet long covered with healthy green foliage; *D. crepidatum*, *D. heterocarpum*, *D. Dayanum*, *D. Devonianum*, *D. crystallinum*, *D. luteolum*, *D. Paxtoni*, *D. thyrsoflorum*, and *D. primulinum* with growth 3 feet in length; *Cattleya lobata*, *C. speciosissima*, *Auguloea Clowesii*, and *Sohralia macrantha* with thirty growths in a 9-inch pot. They all bear evidence of good culture, and afford



Fig. 72.—*Cattleya Bowringiana* (single flower).

another proof that Orchids may be grown satisfactorily without having houses specially built for them.

In the conservatory and greenhouse are many plants of interest. *Lapagerias* and double *Clematis* occupy the iron supports. A plant of *Sarracenia Chelsoni* with many leaves has six of its quaint-looking blooms. Some of the best forms of double *Cinerarias* are grown, and a large plant of *Pelargonium Wonderful*, or Double *Vesuvius*, trained in balloon shape, is 4 feet through, bearing scores of trusses of scarlet flowers. *Rollisson's Unique* is represented by several good plants, and is very useful for cutting. Some good varieties of *Amaryllis* are in bloom, and many other plants, the condition of the whole, and the entire garden, reflecting great credit on Mr. Coulling, the able gardener in charge.—G. W. CUMMINS.

#### GARDENERS AND PREMIUMS.

It may be useful to state, and the fact should be recorded, that some of the most noted gardeners in England, and particularly in Scotland, who have sent out more head gardeners than almost any others, never required a premium from any of their men, although they might have been justified in doing so on the strength of their own reputation as gardeners alone. I do not, however, find fault with any gardener taking a reasonable premium from journeymen or apprentices, provided he is prepared to help them in their education, and push them on as far as he can. Premiums are demanded in many professions and trades under such conditions. I could furnish you with cases in which head gardeners and others have paid £100 to estate agents and surveyors for their sons for three years' instruction, the young man doing duty daily all the time and receiving no remuneration, but either employment at a corresponding wage, or assist-



ance to a situation when the three years expired. The objectionable cases in gardens are those in which the gardener trades upon the name of the place he superintends, and takes premiums from the men for the bare privilege of working in the garden in any department for perhaps two years, when they are compelled to leave and go elsewhere without any further assistance. This is what used to be done some years ago in a noted garden in the Midlands. I wrote to the chief myself not long after he took charge on behalf of a young man I was interested in, and either £5 or £10, I forget which, was asked as a premium, the man to leave at the end of two years. I agreed to pay the sum on the condition that the man would be promoted or assisted into a situation elsewhere, provided he gave satisfaction, but the gardener declined to bind himself in that way, as he could get pupils who would not insist on such terms. I need hardly say he did not get my man. In this same place the wages have always been lower than anywhere else in the neighbourhood, so that a premium became a hardship to many young men there, as they found out. Whether the present superintendent there requires premiums or not I do not know. I can give you names and particulars privately if required, and I may add that the head gardener who took the premiums bestowed no personal attention on his pupils, and had not been long there. If they made good use of their opportunities, well and good, either way they had to pay. There is nothing easier than for head gardeners to get premiums if they choose to lay themselves out for them; but, personally, I have never been enamoured of the system, although I have had many offers, and constantly receive them, for the reason that it is not worth while, pecuniarily, unless premiums are taken from all, and a regular system of limited periodical service carried out; but the worst feature of the system is that it ties the hands of the master, and thrusts responsibilities upon him, and often indifferent men, both of which he is much better without. I have heard of gardeners who have been much worried by premium men, who presumed in consequence, and should not wonder if some of the cases recorded in your pages lately were of this sort, although I know nothing of them. As to wearing gloves when stoking, these are provided for the purpose in all good places where much stoking is necessary, as it tries the hands severely in winter. Housemaids are regularly provided with gloves to brush the grates. Rings, over-much jewellery, and other signs of foppery, few real gardeners like to see, because the paltry vanity such things indicate is seldom associated with good sense and practical ability. I know many of the best gardeners personally, and none of them are fops or wearers of rings.—A GARDENER TO AN EARL.

YOUR correspondent "W. P. R." has very kindly acted upon the suggestion of "A Thinker" at page 353, and sent me copies of the Journal for April 29th and May 6th, in the first of which I am directly charged with treating a young man with positive hardship and injustice; and in the number for May 6th appears a statement of a case showing what might be my position in regard to the circumstances mentioned at page 342. The premium of £5 was to be paid down, and on being asked after his arrival here how he intended to pay the amount, he replied that he had a friend in London with whom he had been staying who would lend him the money. In about a fortnight after he informed me that he had written to this friend, but could get no reply from him; he, therefore, suggested to me that I should keep so much per week from his wages until the £5 was paid, and inasmuch as he was paid for eleven weeks I deducted from his wages a total sum of 22s., which is at the rate in round figures of £5 for the year. He never asked for an explanation. How could he, when it was his own suggestion? He was set to do other work after he had shown that he was unable to perform satisfactorily work that he was engaged to do (after much forbearance). The next sentence of "W. P. R." is also untrue. Nearly all my young men stay with me from two to five years. During a period of ten years I have only had two who have stayed but twelve months. I do not include the young man who is the cause of this discussion. I have never taken more than £5 from any man, no matter how long he has been with me; therefore, the intricate calculation and polite innuendo of "W. P. R." is uncalled for. The insinuation that my noble employer makes me an allowance in lieu of premiums is untrue and entirely devoid of foundation. Many of the young men that have come in these gardens have been experienced men, and have paid no premium. As "W. P. R." directs his attention and questions to "Observer" at page 376, I will leave "Observer" to deal with him; and as "W. P. R." for obvious reasons abstains from giving either his own name or mine, I will content myself by remaining—THE EARL'S GARDENER.

[The "Principal Foreman" in the garden in question also writes, stating that "the young man in question did ignore my authority in not keeping proper time."]

"W. P. R." at page 376, conveniently overlooks the fact that he and I occupy different positions in regard to the matter under discussion. He cites what he believes to be a hard case at page 342, and that, apparently, from purely *ex parte* statements, and proceeds to make certain serious specific charges against some particular individual; and he appears to think that because he has not mentioned names he is therefore acting in a very careful and discreet manner. Does it not occur to "W. P. R." that he would have been much more careful and discreet if he had made some attempt at investigation privately before rushing into print? Has he written a single letter to the gardener in question, inquiring how far the young man's statements were correct, and what his reasons were for discharging him? If "W. P. R." has not done that I think he has been both discourteous and unfair to the gardener in question.

My position differs from "W. P. R.'s" in this respect—I am, unhappily, acquainted to a certain degree with both sides of the case I quoted, and was, as my letter showed, the means of the engagement between the head gardener and young gardener; and as it is just possible that the matter may yet be carried to a court of law—especially if a certain party does that which "W. P. R." thinks I might have set an example in doing—I do not wish to precipitate such a result; but the gardener to whom I have alluded is quite willing that I should give his name. I will neither give his nor the young man's for the above reasons, but "W. P. R." can have my name and address by applying to the Editor of this paper. In withholding my name from the bottom of this letter I am not actuated by feelings of either modesty, fear, or shame.

My friend did not suppose the young man would wish to go to him after receiving such a letter, but as he is of a warmhearted and generous disposition, he had not the heart to tell the young man he would not have him after the former had written accepting the engagement, and decided to give him a trial; and, in doing that, he did what I would not have done after I had seen the letter in which he had referred to his father in such "filial" terms; and I did not hesitate to write back and say that "I would not have engaged such a man upon any terms." The young man in question had not "£5 in his pocket," nor could he borrow the sum from the "friend" with whom he had been staying, and who he said would lend it him; therefore "W. W. R.'s" observation on that point is quite beside the mark. I suppose the young man agreed to pay the premium in order to have the opportunity of learning that with which he was unfamiliar, as I and scores of others have done, and not for the particular purpose of being allowed to do the work he was specially engaged to do on his representations that he was accustomed and competent to carry out such work.

"W. P. R." acknowledges that "considerable forbearance" was exhibited towards this young man; but although, in his own view, no other but philanthropic motives are very clear, yet he is reluctant to credit my friend with such motives. In the absence of any other clear motives, "W. P. R." has no alternative but to so credit him. I cannot see anything peculiar in the fact of the £5 having to be paid during the first year; as a rule, it is during the first year that men give the most trouble, and sometimes it happens that after they have been allowed twelve months' credit they have left their situations and "forgotten" that they owe anything. My friend informs me that his predecessor experienced that. I have no personal experience in the matter, for the reason that I have never yet taken a premium off a young man; but my experience on the subject is that they who get the most information imparted to them gratis are by no means the most grateful for it, and I do not think I shall long continue my practice in that respect, although I have done so nearly eleven years.

I do not feel called upon to answer "W. P. R.'s" last inquiry, but for the sake of courtesy I will do so. The number of young men who have not stayed more than twelve months in the gardens alluded to during the ten years my friend has been there—and where there are six in the hothies—I understand are three, and that number includes the young man in question. During the first part of the period of ten years there were but four in the hothy, latterly there has been six, thus giving an average number of five. There has been a total of fifteen changes during the ten years, this gives an average of three years and four months per man. Can "W. P. R." cite another case under similar conditions where the same average number of young men stay the same or greater average length of time? I base my statements upon information supplied to me from the pay sheets, which I consider to be far more reliable than one-sided statements.

"Another Observer" admits my case is the same as he mentions on page 376, and says that he has sifted out a few facts in connection with the same, and says there is good reason for disquietude and inquiry, and appeals to the Editor for a fair hearing. I make no such appeal to him, because I am confident that, having admitted such a serious charge against a gardener into his paper, he will not close its columns until the matter is brought to a clear issue, and provided the question is discussed in a proper manner. I notice that, although he says he has sifted out a few facts in regard to this case, yet he does not attempt to refute or disprove any one of the positive statements that I made on pages 353 and 354, but contents himself by making calculations on a qualified statement—viz., "about 24s." I qualified the statement because I did not remember the exact sum, and by quibbling over a few days in regard to the words "several months." The young man was employed ten weeks and four days, and I am informed he was paid for eleven weeks; eleven weeks come nearer the period of three months than two months, and as any small number over the singular comes within the meaning of the word "several," I contend that my statement in regard to time was correct.

My friend positively states that "Another Observer's" assertion as to the amount deducted is absolutely incorrect. He says it was 22s. and not 27s., as stated by "Another Observer;" therefore his calculations are worthless, and his knowledge of that and similar cases *nil*. I made no defence of too much dress, consequently there is none for "Another Observer" to pass. When a case has to be propped up by incorrect assertions, quibblings, or garbled quotations it indicates weakness indeed.

"Another Observer" says, "The charge of not turning out and ignoring the foreman's authority is disputed," and calls for the foreman as a witness. Well, he shall have him, and here is his testimony as given last Saturday in reply to questions on the points "disputed" but not denied: "I had to speak to the young man in question as to turning out



at the proper time more than once, and after great forbearance had to speak to his chief, but apart from all that, he was no use at his work."

It is usual in "other places" for respectable "counsel" to throw up their briefs when they find their own witness give evidence for the "other side" and their "facts" to be founded on "fiction." What does "Another Observer" intend to do? My friend informs me that he has never taken more than £5 from any man, no matter how long he stayed, and as this case and "W. P. R.'s" appear to be identical, inasmuch as he has forwarded copies of *Journal* to my friend, as suggested by "A Thinker," it will be as well in future to confine the discussion to the subject in dispute—viz., Has the earl's gardener deducted more than he is legally entitled to from the young man's wages? was the agreement for the £5 to be paid "down," and failing to be able to pay the £5 down, did the young man himself suggest to the earl's gardener in the large conservatory that he should deduct an unspecified sum from his wages? The earl's gardener takes the affirmative to the above questions. I now content myself by saying the threat at the end of "Another Observer's" letter is characteristic of the private letters, and will have about as much effect.—OBSERVER.

### PROFITABLE GARDENING.

#### ROSES FOR MARKET.

YOUR correspondent, "J. M., Somerset," page 372 of the *Journal*, has made out what appears a good case at "first sight," in writing on the Maréchal Niel Rose (page 373); but let us examine it a little more closely. It looks very nice in print to see 2000 Rose blooms realising about £25; there are, however, other things to be taken into account. How much has the house cost in working during the year in fuel, &c.? There is also cutting, packing, and carriage of the flowers to market. Deduct the above items, and then how much is there left out of the £25, which alone can be looked upon as actual profit?

I can show a little of the other side of the question of Rose-growing and marketing surplus blooms. It has, perhaps, fallen to my lot to have as many Roses under glass to care for as most men in medium-sized private places. We have three houses devoted to the growth of Roses, more or less, and I have sent over 500 blooms per week away during some weeks in the spring, of course in different varieties. Several of them are Hybrid Perpetuals, of more use than Maréchal Niel; besides using a quantity at home and giving some away amongst friends. I have sent a few for your inspection, which may be taken as under the average quality, some of our best varieties being out of bloom just now. The highest price I have received this spring has been 2s. per dozen at Hull, and for the last month 1s. 6d., and now 1s. per dozen. The last week in April I received from Covent Garden at the rate of 10s. per 100; the first week in May 3s. per 100 blooms, and many of the blooms much better than those forwarded to you were.

I think the readers of the *Journal* will do well to think twice before they go very extensively into Rose-growing under glass for profit, especially as far north as Yorkshire. I am afraid such glowing accounts of Maréchal Niel Rose for profit will not be to the advantage of many gardeners who have to market surplus flowers. The question will be put by several employers to their gardeners, when perhaps their hands are already full enough of other work, Why don't you make it pay better?—W. W., *East Yorkshire*.

[The Roses received are very fresh and bright, with good foliage, and may be described as good huttonhole and houquet flowers.]



WE understand that it is the intention of Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, to make a fine display of TREE PEONIES and other choice plants in conjunction with the show of pot Roses, Azaleas, &c., in the conservatory at South Kensington, on the 25th inst.

— A NEW edition of Mr. Lewis Castle's "TREATISE ON ORCHIDS" will be published in a few days. It has been considerably enlarged, contains a chapter on cultivation, with other additions, will be bound in cloth and sold at the same price as the preceding issue—namely, 1s., post free 1s. 2d. from this office.

— Mr. G. BOLAS sends us FLOWERS OF ALLAMANDA NERIIFOLIA and HIBISCUS ROSA SINENSIS, remarking that "The two plants are grown in 12-inch pots, and have flowered most profusely from the early part of January. They are two good old plants worthy of more general cultivation. The flowers last longer in water than on the plants. The Allamanda is stopped first joint from the flowering shoot, breaks out and flowers again very shortly; the Hibiscus branches are twisted down and flower freely at every break."

— THE fourth edition of the CATALOGUE OF MISS M. NORTH'S PAINTINGS AT KEW is just at hand, and, apart from its merit as a descriptive list of a most remarkable collection of paintings, it is an interesting manual of geographical botany. It has been compiled by Mr. W. B. Hemsley, and contains a map of the world, showing the countries and districts visited by Miss North. About 900 species of plants are represented, belonging to no less than 727 genera. *Lælia purpurea*, mentioned at page 16, is probably the well-known *L. purpurata*.

— THE EXHIBITIONS AT THE ROYAL AQUARIUM.—I have just received an intimation from the Manager of the Royal Aquarium Company that the Exhibitions fixed for July 9th and 10th, and August 20th and 21st, are unavoidably withdrawn for this season, owing to the number of shows arranged to take place during the summer. I shall be obliged if you will make this announcement in the columns of the *Journal of Horticulture*.—RICHARD DEAN, *Ealing, W.*

— THE LONDON CATALOGUE OF BRITISH PLANTS (G. Bell and Sons, York Street, Covent Garden, London), has for some years been a standard work of reference for collectors of British plants, as an index to British Herbaria, and as a guide in exchanging specimens. The eighth edition, just issued, giving in forty pages a list of the British Phænogamia, Ferns, &c., is an improvement in many respects upon the preceding edition, very neatly printed and carefully revised.

— PRESENTATION TO MR. W. P. THOMSON.—On Tuesday last the employés in the Royal Horticultural Society's Garden at Chiswick met together in the Council Room to present to Mr. W. P. Thomson, foreman in the plant department, a timepiece as a testimonial of their esteem in view of his approaching marriage. The presentation was made on behalf of the men by Mr. J. Barry, and suitably acknowledged by Mr. Thomson.

— EXHIBITION OF TULIPS AT HAARLEM.—At the present time there is in the nursery grounds of Messrs. E. H. Krelage & Son, Kleinen Hontweg, Haarlem, Holland, a splendid Exhibition of late Tulips in flower, which will last to the end of this month. In a spacious tent two beds of Tulips are planted, including all the best old Dutch sorts of late Tulips (Violettes, Roses, and Bizarres), 700 bulbs in each bed, all different. The tent is also well decorated with flowering and ornamental plants. A gallery connects this tent with another one containing the collection of Flemish late Tulips (only Violettes and Roses), bought last year by MM. Krelage at Lille from Mr. Jules Lenglard, the last good collection existing there. There are two beds arranged alike, each containing 840 sorts. Probably such a large exhibition of late Tulips has never been seen before. In 1885, after more than twenty-five years' rest, Messrs. Krelage again opened their Tulip show, which is now repeated on an extended and improved scale.

— MR. STAVELEY TAYLOR writes in reference to ripening GRAPES AFTER CUTTING—"I shall be glad if you, or any of your readers experienced in Vine growing, can tell me if there are any means by which Grapes cut from the Vines when they are only half or two-thirds ripe can be ripened in a dwelling house. Would they mature if put into bottles and kept in a warm room?"

— THE ABBEY PARK, LEICESTER.—This extensive and admirably laid out Park richly deserves a visit from all interested in landscape gardening, and who can admire excellent spring and summer bedding, and the 3rd of August will be a special day, as a horticultural exhibition on a large scale is to be held there. A very extensive display of early Tulips and other spring bedding plants has been seen there this spring, but it is the summer bedding which is the great feature of the Park, and in which Mr. J. Burn uses a great quantity of succulents, having one of the finest collections in the kingdom.

— IN the *Midland Free Press* of the 15th inst., a Leicester paper, we notice the following:—PRESENTATION TO MR. J. BURN.—The thousands who, during the winter months, had the pleasure of being present at the series of popular promenade concerts in the Floral Hall inaugurated by the Mayor, will remember with pleasure the beautiful and tasteful manner in which the platform and its surroundings were florally decorated under the direction of Mr. J. Burn, of the Abbey Park. It was felt by his Worship the Mayor and the committee of gentlemen who acted with him in the promotion of these concerts that Mr. Burn's services should in some way be recognised, and on Saturday afternoon last he (Mr. Burn) was the recipient of a very handsome silver tea and coffee service, most elaborately and appropriately chased with Fern leaves, which bore the following inscription:—"Presented to Mr. J. Burn in



recognition of his valuable services to the Committee of the Mayor's (I. Hart, Esq.) Subscription Promenade Concerts.—March 30, 1886."

— GARDENING APPOINTMENTS.—Mr. James Child, late head gardener and bailiff to Mrs. Torr, Garbrand Hall, Ewell, has been appointed head gardener and bailiff to W. Bailey Hawkins, Esq., Houndswood, St. Albans. Mr. J. Silver, late head gardener to the Right Hon. Lord Trevor, has taken the Norbury Nurseries, South Streatham, S.W., lately in the occupation of John Parker & Sons, where he intends carrying on the business of a nurseryman, florist, seedsman, and hardy herbaceous plant grower. Mr. Wm. Wenman, after having been foreman at Hickleton, Doncaster, for six years, has been appointed to take charge of the gardens there, succeeding Mr. Harris.

— THE Committee of the PRESTON AND FULWOOD HORTICULTURAL SOCIETY with a number of friends met together on Saturday evening, May 15th, for the purpose of presenting Mr. Atherton, the Hon. Secretary, with a most beautiful drawing-room timepiece, also for Mrs. Atherton a tastefully hand-painted tea and coffee service in china, in recognition of his much-valued services. Mr. Atherton has worked hard for the Society for upwards of seven years as Secretary, for which he has received nothing more than an annual vote of thanks. J. Garlick, Esq., J.P., very kindly consented to preside and make the presentation, which he did with a few well-chosen remarks. Mr. Atherton replied, expressing his sincere thanks to those present. Mr. Swan and others remarked that Mr. Atherton well deserved the presents, also continual sympathy from the members at all times.

— THE usual monthly meeting and conversazione of the Horticultural Club took place on Tuesday last, when there was a good attendance of members, including Messrs. Cousens, Girdlestone, Geo. Paul, J. D. T. Llewelyn, H. J. Pearson, C. Pearson, Wheatstone, Professor Sanders of Ontario, Canada, P. Crowley, &c. The discussion was opened by an interesting paper on the Bog Garden, by Mr. Geo. Paul, who detailed his experiences at High Beech, and gave many interesting illustrations of the mode of making one, and of the plants which had succeeded or failed. The paper appears in another column. The discussion was continued by Messrs. Llewelyn, Cousens, E. Jenkins, Professor Sanders, and others, and many interesting facts were elicited. A cordial vote of thanks was unanimously given to Mr. G. Paul for his interesting paper.

— THE monthly meeting of BELGIAN HORTICULTURISTS was held in Ghent on the 10th inst., the following being present:—MM. Moens, Closon, Hye-Leysen, Em. Decock, B. Spae, Ch. Van Geert, Cuvelier, Rosseel, Desmet-Duvivier, Blancaert, Arth. Desmet, Peeters, A. Van Geert, père. M. Moens presided, and Jules Closon was Secretary. Certificates of merit were awarded for *Odontoglossum Alexandræ* var. *Helenianum* from M. Halkin of Brussels; *Davallia foeniculacea*, from M. Aug. Van Geert; *Rhododendron hybridum*, *The Strategist*, from M. B. Spae; *Masdevallia Chelsoni*, *Cypripedium microchilum*, and *Cypripedium Curtisi*, from M. Hye-Leysen. A cultural certificate was awarded for *Ptychosperma Alexandræ*, from M. Emile Decock, and honourable mention for *Cattleya Mossiæ* var., from Madame Veuve Van der Swaelmen; *Pescatorea cerina* var., from M. Louis Van Houtte; *Impatiens Sultani aureo-variegata*, from M. Aug. Van Geert; *Tillandsia hieroglyphica*, from M. Louis Van Houtte; and *Dendrobium thrysiflorum*, from M. James Bray.

### AMERICAN BLACKBERRIES.

ALLOW me to add my testimony to that of "A Kentish Gardener." I also bought a dozen of the advertised plants with a still worse result: not one survived. I doubt if the dried-up twigs I received were in a condition to grow.—A DORSET PARSON.

As requested by a correspondent in your last issue, I give my experience of the much-advertised variety of the American Blackberries. I ordered a dozen. Each had a single stem, except one, which had two, of about a foot in length, and of the thickness of a quill. Seven are dead, two are weakly, and three are growing well, though still small, in fact about the size of a small Gooseberry bush.—W. R.

WE have read that in certain trades when the public demand is abating, adverse criticism is brought to bear upon the articles that the dispensers are desirous of ridding themselves, purposely to again awaken the public interest, so that the parties who have the goods to dispose of can advertise the same gratuitously. In case, therefore, such a reflection should be brought to bear upon the subject of these remarks, we can

readily answer the Editor and the readers of the *Journal of Horticulture* that such is not the case in this instance.

In reply to "A Kentish Gardener," we may observe that when we introduced the Wilson Junior into this country we were not oblivious of the difficulties in the way of establishing the culture of this American Blackberry here. Of course, the primary obstacle is transit. To cover this point we undertook to replace any plants that might fail, and advised "A Kentish Gardener" and other purchasers of our willingness to do so, fully knowing the value of what we were introducing. The first importation that we received was in the spring, 1885, and being delayed by the severe and late frosts on the other side, did not reach us until April, and on arrival were distributed far and wide at once.

May we suggest to "A Kentish Gardener" that before he imputed an attempt at imposition (!) he should, in common English fairness, have written for an explanation and rectification? Had he done so—agreeable with our circular sent to him—we should have willingly replaced the canes that had failed. There are, of course, other contingencies, such as prejudice, &c.; but notwithstanding them all, we predict, and with good reason, that in less than ten years the Wilson Junior, along with some other seedlings we are raising, will be known and appreciated throughout the country.

We are well aware that all this correspondence serves to indirectly advertise us, and although not at all desirous of abusing the privilege kindly afforded us by the Editor, we consider it only right to reply.—VICCARS, COLLYER & CO.

[The last paragraph in a printed circular sent with the above communication contains the following sentence:—"We undertake to replace any plant that may happen to fail." Purchasers now know what to do, and there appears no longer any necessity for prolonging the discussion on this subject.]

### BEDDING OUT.

THE bedding-out time is a busy and anxious one in many places. The business is caused by the work of planting many hundreds or thousands of plants, and the anxiety is produced lest frost or adverse weather should come and injure them. In some parts of the south we have planted the whole of our flower beds in the second week in May, but further north we were afraid to do this, and deferred operations until the middle of May. From the middle of May to the commencement of June is a safe time to bed out in most districts, and with good plants and care the beds will soon be furnished with abundance of foliage and a profusion of blossom.

The most important matter of all is to have the plants well hardened off and quite accustomed to the open air, especially at night, before they are placed in the beds. No plants can be expected to be an immediate success that are brought out from a warm humid atmosphere under glass, placed in cold soil and under the influence of a drying wind or hot sun. If there is not enough of space under glass to allow the plants being propagated early and hardened in good time it would be better to give up bedding of this character. Where, however, the plants were propagated from seed and cuttings in March, kept moderately warm until the middle of April, and then gradually withdrawn from the heat until they were in the open air altogether early in May, there will now be no danger of their being checked.

Golden Feather, Calceolarias, and similar plants should be placed out first, Pelargoniums may follow, but Dahlias, Alternantheras, Tuberous Begonias, and other plants which are easily checked should be left until the last. By following a system of this kind we place out many hundreds of plants annually without ever having any blanks to fill. Before any attempt is made to lift the plants from the box in which they are growing, or turn them out of the pots, the soil should be thoroughly saturated at their roots, then each plant will be transferred with a good quantity of soil attached to the roots. Small plants for carpet beds can often be planted with the hand, merely making a small hole with the two fore fingers and pressing the soil back again; but any too large for this should be planted with a trowel. No matter what size the roots may be, the hole for their reception should always be a little larger, so as to admit them freely. We have had some men planting who made the holes very shallow, and after the plant was in they pressed the roots down hard, which broke many of them as well as loosening all the soil about them. All plants with long stems must be planted deeply, and those with rather long top growths should be planted on their sides. Petunias, Verbenas, and Ivy-leaved Pelargoniums are amongst these, and as soon as they are planted they should be pegged down. As a rule wet weather is preferred for planting, as it agrees best with the plants and saves watering. One thorough watering after planting is more beneficial than repeated surface sprinklings. When the soil has been watered once and is getting dry again, the Dutch hoe should be run through it to break up and level the surface, and a hoeing now and again during the season is all the attention they require to keep them in good condition.—M.

### THE MAKING OF A BOG GARDEN.

[A paper read by Mr. George Paul at the Meeting of the Horticultural Club, Tuesday, 11th inst.]

GIVEN—you have a piece of squashy, water-charged bog land, on which you dare not tread for fear of going in over your shoetops, worthless except to produce a few Rushes, and maybe an Alder or Willow stub—Can it be made into an attractive garden? YES—but it takes two or three years to do it, to get rid of its old indwellers and fully establish the new—



comers, and to find out what will and what will not do, for I do not think we know very much about the likings of moisture-loving hardy plants.

#### THE SITE.

My experiment was tried at High Becch, and this is how the bog garden was made. The site was one of those depressions which are found on the Bagshot Sand hilltops, upon the Wimbledon, Epping Forest, and Hampstead Heathlands. Between two ridges of raised ground and on the falling slope occur spewy springs issuing from the higher ground above, and soaking down the hollow, widening and gathering moisture till the water issues in a small rill at the bottom of the decline. *Droseras*, Ivy-leaved *Campanula*, and other native bog plants are found with the sphagnum and rushes in the wet springy ground.

The successful growth of *Sarracenias* and *Dionæa* first led to carrying out the idea more fully. There are many hardy plants which from the want of the continuous moisture of such a site, and which they enjoy in their native haunts, do not succeed year after year in the ordinary herbageous or garden border; a hot summer comes and they are not—to instance some *Calthas*, the double sorts of the glorious Marsh Marigolds now brightening our Lea Marshes, *Sarracenias*, Primroses from Himalayan bogs, *Spiræas*, and others. The idea was to show these plants in their natural way, and so to see them in their full beauty.

#### HOW BEST TO USE THE SITE—REQUIREMENTS.

The chief thing to do was to husband and use thoroughly the water running into and accumulating in the bog. A temporary deep drain was made right up the centre, and the work was done in a dry early autumn, allowing the men to move on the surface. This, husbanding the water, was done by forming beds following the circular shape of the depression, and so made that the upper set received all the issuing spewy springs that could be found issuing from the surrounding banks on to the surface of the bog. A 2½ feet wide bank of clay was then put in and trodden firmly on the lower side of the beds, defining the beds and keeping the moisture in them until allowed to escape.

A second series of beds was a foot lower. A third a few inches below this, and one bed of this series had all the peat removed until the clay which (except here and there where water oozed up through clayey sand) formed the bottom of the bog, was reached, thus making a small pond to receive the overflowings from the upper beds. A fourth series of beds received the overflow from the pond and upper beds, as well as one or two independent springs from the sides, and eventually the water ran off into the brook or ditch in a small clay-lined channel built across the so to speak miniature valley.

The small difficulties I had to overcome were in making the clay walls to the beds. Towards the sides of the hollow a firm bottom was found, but when the bottom was springy the water simply oozed up through the clay and does so more or less still, but the dams or walls do their work—that is, they keep the moisture in the several levels well. They act also as paths to let you walk in comfort about the space (which, by-the-by, is 60 feet square), the chief thing to make a bog garden useable and enjoyable in all weathers and seasons. But the paths at first did not answer, for you found yourself up to the knees in miry clay. A surface crust of gravel and cement concrete was tried, but the water sponged up through it, the clay swallowed it; so something had to be done to keep the clay down and get a safe path.

The foreman suggested, and a wood clearing close by furnished, the remedy. For the spewy places some small Beech trunks were split in two, laid round side downwards along the paths, and short split branches (smaller) were laid across them, making corduroy paths 2½ feet wide. A little gravel between the logs keep them in place; they are a perfect, comfortable, and lasting path, and keep the clay down and in place. I forgot to say that from each series of beds water above a certain level flows in small drain pipes into the next level, enabling the height of the water in each bed to be regulated.

In the middle of one or two of the largest central beds an upright post is driven, the top just on the surface, to receive the one end of three split trees, and so allow every plant in the bed to be reached. So far we have gained control of the water, enlarged and retained the full boggy space, and have means of moving comfortably about the moist area.

#### PREPARING THE BEDS FOR PLANTING.

Owing to enlarging the area there was not sufficient peaty material. foreign peat and leaves had to be furnished to make 1½ foot of good soil in each bed. Small rills drawn with a hoe to the mouth of the overflow pipe allow the bog to be controlled, a stroke of the hoe retains moisture, or allows the surface and crowns of the plants to be kept dry or raised out of the water. The beds are sub-divided by small peat banks, on which plants liking their toes or root-extremities in water, but their crowns to live in drier regions, are fixed.

The chief enemies have been, the principle of the "fittest surviving," in the shape of the rushes and water-loving grasses striving to resume possession, an occasional and timely weeding conquers this, the Liverwort tries to surface the whole, to the detriment of the smaller plants, such as *Soldanellas*, *Vio'as*. It wants a careful, and now and again, scratching away. The birds, tempted by the loose peat surface, after hoeing or weeding, come and scratch for food, and some smaller winter-roosting plants, such as *Dionæas*, *Droseras*, *Pinguicula*, are apt not to be forthcoming when looked for next spring. Just a word as to full exposure to sunlight. The space is open, except for a slight shade in the shape of a row or two of 6 feet Hollies to the south, but my experience is that moisture at the roots, few plants object to this. In this the garden differs

from Mr. Wilson's interesting experiments at Wisbey, where many of the plants are under, or shaded by overhanging trees. In other ways our experiments differ, besides it is not everyone can devote a wood to gardening.

#### THE PLANTS.

Of the plants first put in, there were many died. The water supply of the several parts was unknown; some were drowned, some were too dry. The best survivors of the first plantations are—*Calthas*, double forms, the monstrous, the *Palustris plena*, and the later dwarf and double form. Of the *Sarracenias*, purple flowers and seeds freely about. *S. Drummondii* is the next hardiest. *S. flava*, *S. rubra* and *psittacina* seem to live, but get weaker after each winter. I am sorry that some interesting hybrids sent me by Mr. H. Veitch and Mr. Wrigley have not survived. The white *Pilewort* is a splendid plant in the bog. *Lobelia syphilitica* and the American *Osmundas* flourish well together. On an extreme jutting out into the small pond *Saxifraga cordata* flowers gloriously, the golden *Lysimachia* has to be restrained, or would cover the surface. The striped *Viola* and *V. pedata*, *Ranunculuses*, including the beautiful little one, *Parnassifolius*, thrive. *Dondia Epipactis*, *Valeriana Phu aurea*, the *Trollius*, and more especially the varieties of American Cowslip, *Dodecatheon Jeffreyanum*, and others are quite at their best.

Of the taller-growing plants the *Thalictrums*, *Achillea Ptarmica* fl.-pl., the American *Liatris*, *Lysimachia clethroides*, *Lynchnis* of sorts, *Gentiana pneumonanthe* and *macrophylla* thrive freely. *Pyrola rotundifolia*, the *Mandrake* with its curious two-legged roots, *Pyrola rotundifolia*, *Trientalis europæa*. On the slightly raised banks the Arctic Bramble and the *R. Chamæmorus* have established themselves, and fight where they join for supremacy with the American Cranberry from the Wisbey wood. *Droseras*, *Dionæa*, and *Pinguicula* have been disturbed this winter by the birds. *Orchis foliosa* seems to rejoice in a water-teeming bed, and is there quite hardy. No doubt other *Orchis* would succeed.

*Primulas* have a bed to themselves, forty or fifty of the Alpine and Himalayan kinds were planted, but probably from the want of limestone or from not having been planted on shaly slopes charged with water, only the following have survived and thriven. *P. japonica* and *denticulata* are becoming the self-sowing weeds of the garden. *P. rosea* and its large-flowered variety, *P. Wulfeana* and the varieties of *minima*, *P. viscosa nivalis*, *glutinosa* need also shade; *P. villosa* and *Stuartii*; *Munroi* needs the moistest place. A large bed is given up to *Spiræas*, such as *Aruncus*, *palmata*, and *japonica*, they are mixed with the American Lilies of the *pardalinum* type, which attain 6 to 8 feet. Mr. Bull's *Astilboides* and the white form of *Palmata* thrive apace.

The Zebra and corkscrew rushes need to be kept in bounds. Of *Irises*, I took counsel with Professor Foster; the stronger varieties of *Iris Kæmpferi* are at home in the wet bog, but occasionally a sort disappears in winter. They seem quite at home in the clay banks of the rill.

I should occupy too much time if I gave all the failures; the result of the experiment has appeared to be a success. If my remarks lead some others to make a trial in this direction I shall be glad. So many have more experience than I have had. Will they tell us something about it?

### THE HEREFORDSHIRE POMONA.

#### PRESENTATION TO MISS BULL AND MISS ELLIS.

THE invaluable services of Miss Bull and Miss Ellis of Hereford, in painting the original drawings for illustrating the "Herefordshire Pomona," were to some extent recognised by a testimonial presented last week. Throughout his great work the late Dr. Bull was encouraged by Lady Emily Foley, the rich and fruitful gardens of Stoke Edith House being ever open to the Woolhope Naturalists' Field Club; and it was with her ladyship that the idea originated of making the presentation under notice. (It was also, we may mention, through her ladyship that Her Majesty the Queen commanded a copy of the "Herefordshire Pomona" to be specially prepared for the Royal Library at Windsor.) About eighty of the nobility, gentry, and professional gentlemen subscribed, and the testimonial to each lady took the form of a miniature portrait on ivory of the late Dr. Bull, together with a cheque of 100 guineas. The interesting ceremony took place in the drawing-room of the Deanery, and many of the subscribers were present.

The Dean said he should be interpreting the wishes of those present if he asked Lady Emily Foley to make the presentation. Mr. Henry Higgins seconded the proposition, which was supported by Mr. Piper.

Mr. Reginald Symonds, the Hon. Secretary, intimated that several letters in explanation of inability to attend had been received. Dr. Hogg, in his letter addressed to Lady Emily, said that after the considerable share he had taken in conjunction with the lamented Dr. Bull in the preparation of the "Herefordshire Pomona," it was a great disappointment to him not to be able to be present on such an interesting occasion. It was very gratifying to him to know that so substantial a recognition of the devoted services Miss Bull and Miss Ellis had rendered not only to their county, but to their country, by their illustrations to the "Herefordshire Pomona," which far excelled anything of the kind produced in England, and which were in no way inferior to the efforts of the best artists of the Continent, had been secured. The other letters were from Lord Bateman, Sir William Vernon Guise, Mr. Pulley, M.P., Mr. Rankin, Mr. W. Henry Barneby, Mr. B. St. John Attwood-Mathews, Mr. Edwin Lees, Worcester; Mr. E. Caddick, Birmingham; Mr. Arthur Hutchinson, Rev. Prebendary Phillott, Rev. C. H. Bulmer, Rev. J. E. Vize, Welshpool; Mr. James Davies, and Mr. C. Rootes.

Lady Emily Foley then read the following address, and gracefully made the presentation:—

"The 'Herefordshire Pomona' having now been completed, the Woolhope Naturalists' Field Club, under whose superintendence it was brought out, and the ladies and gentlemen whose names are appended, from a wish to



manifest their appreciation of the artistic ability and devotion displayed during eight successive years by Miss Bull and Miss Ellis, who painted from Nature, solely for the love of art, the original drawings for the necessary illustrations, have great pleasure in requesting each of these ladies to accept a miniature portrait on ivory of the late lamented H. G. Bull, Esq., M.D., the learned general editor and originator of the work, together with the sum of 100 guineas, in recognition of their eminent services in the production of a book which has justly been styled by the distinguished pomologist, Robert Hogg, Esq., LL.D., F.L.S., London, 'the most splendid work in artistic execution, and fidelity in design, which has ever been produced on the subject.'

The signatures appended to the address were those of the following:—Lord Bateman, the Earl of Powis, Lord Windsor, Hon. and Rev. B. L. Scudamore-Stanhope, Lady Croft, Sir William Vernon Guise, Elmore Court, Gloucestershire; Mr. Pulley, the late Dr. Bull, Mr. Arthur Hutchinson, Mr. T. B. Acton, Grove Road, Wrexham; Mr. B. St. John Attwood-Matthews, Mr. R. W. Banks, Mr. W. H. Barneby, Mr. Thomas Blashill, Mr. J. A. Bradney, Rockfield, Monmouth; Rev. C. H. Bulmer, Rev. C. Burrough, Mr. E. Caddick, Birmingham; Alderman Cam, Rev. Canon Capel, Abergavenny; Mr. T. Carver, Mr. Joseph Carless, jun., Dr. Chapman, Burghill, Hereford; Rev. G. H. Clay, Aston Rectory; Rev. Prebendary R. H. Cobbold, Mr. E. W. Colt-Williams, Mr. James Davies, Major Doughty, Rev. W. D. V. Duncombe, Rev. Canon Duport, Denver Rectory, Downham; Dr. Glendinning, Abergavenny; Mr. E. H. Greenly, Rev. Prebendary F. T. Havergal, Ross; Mr. Henry Higgins and Mrs. Higgins, Thinghill; Dr. Robert Hogg, Rev. E. J. Holloway, Clehonger; Mr. John Hopton, Rev. Michael Hopton, Mr. W. J. Humfrys, the late Reverend W. Jones Thomas, Llanthomas; Mr. John Lambe, Lady Emily Foley, Lady Henry Somerset, Lady Hindlip, Hon. and Very Rev. George Herbert, Dean of Hereford; Rev. Sir George Henry Cornewall, Sir Harford J. J. Brydges, Miss Hutchinson and Miss Charlotte Hutchinson, Hagley Park; Rev. W. H. Lambert, Mr. Theophilus Lane, Mr. Edwin Lees and Mrs. Lees, Green Hill Summit, Worcester; Rev. A. Ley, Sellack; Mr. James W. Lloyd, Kingston; Mr. J. H. B. Luntley, Mr. C. G. Martin, Mr. J. J. Merriman, South Kensington; Mr. H. C. Moore, Mr. J. Griffith Morris, Mr. T. C. Paris, Hereford; Mrs. Pateshall, Mr. C. H. S. Percival, Longwiton Hall, Morpeth; Mrs. Robert Platt, Staleybridge; Rev. Prebendary W. H. Phillott, Mr. G. H. Piper, Rev. D. Price, Little Marcle; Mr. J. Rankin, Very Rev. Prior Raynal, St. Michael's Priory, Belmont; Mr. J. Riley, Putley Court; Mr. C. Rootes, Mr. J. F. Symonds, Rev. W. S. Symonds, Pendock Rectory, Worcestershire; Rev. F. H. Tatham, Mr. Vachell, Cardiff; Mr. R. V. Vassar-Smith, Charlton Park, Cheltenham; Rev. J. E. Vize, Forden Rectory, Welshpool; Mr. J. G. Woodhouse, Mr. J. H. Wood, Tarrington House, Ledbury; Mr. R. F. Woollett, The Mount, Newport; and Mr. H. C. Beddoe.

Mr. Higgins said he was requested by Miss Bull and Miss Ellis to express their warmest thanks for the testimonial which had been given to them. Having discharged that duty, he could not but say how much they were indebted to those ladies, for it was a fact that if Dr. Bull had not secured the gratuitous services of Miss Bull and Miss Ellis, they would never have had that beautiful work; it would have been too costly a hook to have engaged professional artists. In obtaining the gratuitous services of these ladies Dr. Bull was able to carry out his work, and, therefore, they were greatly indebted to them. But not only that, it was a great thing for two young ladies to spend eight years of youth in a public work of this character. He thought it was very commendable when two young ladies came forward and devoted themselves to the public work of this character, and it was a thing which they ought to recognise in the way they had done.

Mr. G. H. Piper observed that it was due to them to return a vote of thanks to Lady Emily Foley for so kindly and gracefully making the presentation. He made the proposition to them in his official character as President of the Woolhope Naturalists' Field Club, which, as far as the powers of its members would allow, assisted in bringing out the "Herefordshire Pomona," the completion of which they then celebrated by making that appropriate presentation to Miss Bull and Miss Ellis. The work had been successful from beginning to end, and the presentation crowned the efforts of those ladies who assisted in producing it. He proposed a vote of thanks to Lady Emily.

Mr. C. G. Martin (the retiring President of the Woolhope Field Club) seconded the proposition, and, in doing so, said he did not quite agree with Mr. Higgins as to its being absolutely necessary that they should have had gratuitous help. Those who thought so seemed to forget the wonderful fertility of resource of Dr. Bull. If he had not been favoured with the services of these ladies, he would certainly have devised some other means to carry out the object upon which he had set his heart. However, they were deeply indebted to Miss Bull and Miss Ellis for their services.

The Dean said that on behalf of Lady Emily Foley he thanked them for the compliment they had paid her. He assured them that it had given her ladyship very great pleasure to attend on that occasion. Her ladyship, like them all, had greatly admired the beautiful illustrations of the "Pomona" which were due to the skill, the artistic skill, of Miss Ellis and Miss Bull, and she also joined with them all in remembering their late lamented friend (Dr. Bull) with the greatest possible respect. He again assured them that it had given her ladyship great pleasure to attend on that occasion.—(Hereford Times).

#### DEATH OF M. AMBROISE VERSCHAFFELT.

MANY of our readers will regret to hear of the death of M. Ambroise Colette Alexandre Verschaffelt, better known perhaps by his familiar name of M. Ambroise Verschaffelt of Ghent, which occurred on the 16th inst. at his residence, 98, Chaussée de Courtrai. M. A. Verschaffelt was one of the most prominent of the great Belgian nurserymen, and his name was as "a household word" throughout the world of horticulture. The founder of the vast establishment now directed by M. L. Linden in the Rue de Chaume, he there carried on an extensive trade for many years, till he relinquished it in favour of M. J. Linden, who was at that time in business at Brussels. Since then M. Verschaffelt has lived in retirement, though not in idleness, for he still retained his love for horti-

culture, and occupied his leisure in cultivating those plants which commended themselves most to his horticultural tastes. For a considerable time M. Verschaffelt has suffered from a painful malady—we believe cancer of the tongue—to which he succumbed. He was the founder of "L'Illustration Horticole," and besides holding many honorary offices in Belgium he was officer of the Order of Leopold, was decorated with the "Croix-Civique" and the following orders:—St. Maurice and Lazare, the Legion of Honour, St. Anne of Russia, the Medjije, Frédéric of Wurtemberg, the Lion of Zœbringen, Adolphe of Nassau, Grand Duke of Hesse, and the Dukes of Nassau and Oldenburg. M. Verschaffelt was born at Ghent on the 11th December, 1825, and was consequently in the sixty-first year of his age.

#### ORCHIDS AT THE GLEN, LEWISHAM.

If any persons still doubt that Orchids can be successfully grown in town or suburban gardens, a visit to Dr. Duke's collection at The Glen, Lewisham, would speedily dispel the illusion, and would, moreover, convince the most sceptical that the mysteries with which some invest the culture of Orchids are purely imaginary. The garden is a small one, such in fact as is found attached to most suburban residences about the same distance from the city, yet by a careful economy of the space at command about ten small houses have been erected near the boundary wall, still leaving space for a miniature lawn, rockery, and flower garden. The collection of Orchids is a remarkable one in several respects. The number of species and varieties is large, much larger than is the case in many more elaborate and extensive establishments. The condition of the plants also is most satisfactory, healthy growths and abundant flowers being the rule, with extremely few exceptions, the result of the adoption of a consistent reasonable treatment. High temperatures are abjured at The Glen, free ventilation at all times except when the weather is severe, and full exposure to light, affording only sufficient shading to break the force of the sun's rays when most powerful, are the guiding principles of practice, and any that might be disposed to dispute them would find an irresistible reply to their strongest arguments in the plants themselves. They grow vigorously, flower freely, and afford every indication that the treatment they receive is exactly to their liking, and what more can be needed?

Within five years Dr. Duke has formed a collection of which he has every reason to be proud, and the pleasure he derives from watching the progress of his favourites is ample recompense for the trouble and expense incurred. By purchasing established plants of known varieties, or choice varieties, and occasional lots of imported plants, the character of the collection has been steadily improved, and at the same time the interest of expectancy has been increased by the gradual flowering of the imported plants. Sometimes a grower has the satisfaction of finding a good variety amongst many that are of little value, but this is quite sufficient reward for the watching, although the actual pecuniary gain may not be great. There is no doubt that the mild excitement attending the expectation of securing a prize from imported plants has tended to increase the attendance at the sale rooms, but established plants of known value can now be procured so cheaply that most of the best collections are formed mainly of them, the others coming in as supernumeraries.

One of the principal houses at The Glen is that devoted to Cattleyas, which is a light and lofty structure with a sharply inclined roof, and seems to suit the plants admirably. It is a cheaply constructed house, with a light wooden framework glazed down to the side stages, and below these to near the ground level the framework is covered with Willesden paper, a waterproof composition that has proved very durable and quite effectual during the past severe season. A space of about 2 inches is left between the lower margin of this and the wooden frame, extending the whole length of the house, so that constant ventilation is provided, and it was only found necessary to close this for a short period when the frost was sharpest and the wind keenest. There is a small lantern at the apex of the house, and a space is similarly provided there which is almost constantly open. Further means of ventilation is afforded by hinged or moveable boards at the sides of the house. The doors are left open daily in fine weather, and altogether the plants are nearly as much exposed during the warmer months of the year as if they were outside. One very remarkable result of this is seen in the purple hue the leaves and even the pseudo-bulbs have assumed, which we have never seen so strongly developed. Many species of Cattleya and Lælia are included in this house and look equally thrifty, large numbers of sheaths now showing promise a beautiful display a few weeks later. For shading a light canvas termed Willesden scrim is employed, which, while it efficiently prevents the sun scorching the foliage, it admits abundance of light. Shingle is employed for the stages in preference to the small coal now used in many establishments, or the broken shells which are equal favourites with others; but the stones are found to answer satisfactorily in preserving the moisture. They at the same time keep clean, do not provide a harbour for insects, and have a neat tidy appearance. In some of the houses the corrugated zinc that has been repeatedly recommended is used in the place of either wood or slate for shelves, for which purpose it has much to recommend it. Another point observed at The Glen that is also studied in other establishments is to have the floors of earth, both the paths and beneath the stages, for a more steady supply of moisture is thus afforded than from brick, tile, or stone floors. Success with Orchids, as in other departments, depends in a great measure on attention to these apparently small matters.

Near the Cattleya house is a range of small houses, some of which might almost be called diminutive, yet in one or two of these devoted to the Orchids in flower is a display that could not well be surpassed in



the same space. *Cypripediums*, *Cattleyas*, *Laelias*, *Epidendrums*, *Lycastes*, the late-flowering *Calanthe Regnieri*, *Oncidium*s, *Cymbidium*s, *Odontoglossum vexillarium*, *Dendrobium*s, *Galeandras*, and innumerable others. Perhaps the most striking of all is, however, the lovely *Oncidium Marshallianum*, which is bearing its handsome panicles of golden flowers in profusion, one variety being very notable for its rich deep colour. *Oncidium concolor* also is freely employed. These are arranged with miscellaneous flowering and fine-foliage plants to form a bank on one side of the path with a few on the side also, but the space will not admit of grouping on both sides in the same way. The plants are very tastefully disposed, and we have never seen such a pretty effect produced in a small compass. In a house beyond a good collection of *Phalenopsis* is grown,

*O. cirrhosum*, *O. maculatum*, and *O. luteo-purpureum* being similarly well represented. Communicating with this house is a large frame in which *Disas* are successfully grown. Near by is a small house, very little more than a glass case, where the *Barkerias*, for which Dr. Duke is famed, are thoroughly at home in baskets or upon blocks. They are suspended near the glass, and with abundance of moisture during growth, and a good season of rest, they flower most freely every year.

There are two other houses devoted to miscellaneous collections of Orchids, but they do not need special reference now. It must suffice to conclude these notes for the present that the Orchids at The Glen are in every way a credit to their owner, and the collection must be ranked as one of the best of those in the suburbs of London.—L. C.



Fig. 73.—DR. DUKE'S ODONTOGLOSSUM TRIUMPHANS. (Half natural size.)

mostly small plants at present, but advancing well, suspended near the glass with a general collection of *Anthuriums* and other stove plants.

A house is devoted to *Odontoglossums* and other "cool Orchids," the varieties of *O. crispum* being especially good, several having large, round, beautifully formed flowers, pure white, and deeply tinted with rose. *O. triumphans* is also a favourite, the varieties of fine quality, and one, that represented in fig. 73, is exceedingly good. Dr. Duke has some of his best varieties sketched in colours on plates or "plaques," for suspending in rooms, and that from which the engraving was prepared was thus depicted of its true size. In the woodcut it has been necessary to reduce the size one-half, the original flower measuring 5 inches in diameter from tip to tip of the petals. The colours also were very rich, a fine deep yellow tint and bright reddish-brown blotches. Of *O. Halli* there is also an uncommonly fine variety; the favourite *O. Rossi majus*, *O. Cervantesi*,

#### FRITILLARIA MELEAGRIS.

FROM a remark made by a friend, I have been led to send you a note of a display of flowers to be seen in this neighbourhood, which might very properly be termed one of Nature's flower shows. This occurs in a meadow on the estate of Lord St. Germans and consists of about five acres of *Fritillaria Meleagris*, the white and the purple forms being about equally distributed. In the sunshine the gleam of colour, though modest, can be seen at some distance, and when amongst them it is difficult to walk without treading upon them. A thin undergrowth of *Cowslips* adds to the beauty of the sight. From the cottage to the mansion there is scarcely a home but which is decorated with them, numbers also being used in the making of wreaths and crosses to place on the graves of departed friends. The remark of my friend was, "It beats even the



London parks," but upon that point I am not in a position to pass an opinion.—J. COPSON, *Down Ampney*.

### A DAY IN THE COUNTRY.

"NOTHING novel in this," may well be muttered by gardeners and readers of garden literature who spend the greater part of the time in the open air, far from the "madding crowd;" but are there not gardeners even who spend week after week "within the walls," where the softened, heated air becomes oppressive, and "under glass," where the temperature is exhausting, who would not enjoy a day in the country now and then, and feel refreshed by the exhilarating breezes from the hills or the ocean? Without a doubt there are. But there are gardeners and lovers of gardens, the greater part of whose time is spent, not in the country but in the environs of towns, and some even in the heart of the greatest city in the world. These are they who enjoy an escape from the noise of ever-revolving wheels and clatter of hoofs, the rush and the hum of the seething multitude, jostling together in the multifarious duties of life; and of such I am one.

My "day in the country" was very like a whirl; a case of being "on the move" from 6 A.M. to 12.30 P.M. through eight counties—Worcestershire, Gloucestershire, Warwickshire, Staffordshire, Oxfordshire, Berkshire, Buckinghamshire, Middlesex, and home again to Surrey. But I started overnight, and rested for the coming day in a quiet parsonage. It was the result of a letter to this effect:—"If you can leave Paddington at 1 P.M. on Tuesday and book to Leamington I will meet you there, and if fine, drive you here through some of our most charming Warwickshire scenery." The invitation was irresistible; the "here" referred to in it was Alderminster; the writer the Rev. J. A. Williams. Mr. Williams is widely known in the Rose world, not so much as a great exhibitor, but as one of the best of the expert judges who officiate at the National Rose Society's shows; he is, moreover, a first-rate grower of Roses in his not large garden; in fact, a good cultivator generally; a hard and successful worker in parochial affairs, and has the true English gentleman's tact of making his friends at home the moment they enter his gates.

#### SPRING'S DELIGHTS.

There is, perhaps, no time of the year when an escape from town is more enjoyable than during the early days of May. Trees, half robed with foliage fresh and tender; pastures and cornfields full of green, not brown, banks sparkling with flowers, rivulets shimmering in the sunlight, and birds singing merrily all around. Dwellers in the country, or many of them, heed not these charms; the buds swell gradually and leaves unfold imperceptibly; the grass grows and flowers open in the ordinary way, the change from day to day not being sufficiently marked to receive notice, and the music of birds is not appreciated. But, hear no birds for months, and see no fields nor tree-clad hills, then take as it were a sudden bound amongst them, and spring's delights will be seen and felt in all their refreshing reality.

#### WARWICK—ANCIENT AND MODERN.

But I am at Leamington, and Mr. Williams is on the platform—"Jump in again," was the first greeting; "let's run on to Warwick, only a couple of miles, and we shall escape some dusty roads and troops of people returning from the races." A happy thought, for there is nothing more repugnant—to me, at least, however others may enjoy it—than the reckless rushing "from the races," when the roads are inches deep in dust, and the track is indicated as by a line of smoke. At Warwick, then, we arrive in ten minutes or so; and in a moment the mind is carried back to the far distant past by ancient buildings and the towers of the old castle, which was described by Dugdale as "the most princely seat within these Midland parts." It is undoubtedly a magnificent pile, and it is gratifying to observe in these days of "advanced" notions that a strong and deep-rooted antipathy exists against tampering with the ancient buildings that adorn our land. So old is Warwick Castle that its foundation is attributed to Etheldreda, daughter of King Alfred, in A.D. 915, and it was bestowed at the Conquest on Henry de Newburgh, the first Norman Earl of Warwick. We leave it on the left, pass another venerable and exceedingly picturesque building, Leicester Hospital, on the right, emerging from the town through an ancient gateway, and are fairly on our way to Alderminster. We do not travel far before a contrast is provided for a moment's reflection. From the very ancient we come in contact with the extremely modern; not that the village of Barford, embosomed in trees, appears as if built yesterday; but because one of its sons, named Joseph Arch, labourer, has ceased for a time to delve there, and, to give him his full title, has become Joseph Arch, Esq., M.P., legislator. "And what sort of a character is this Mr. Arch?" I ventured to ask of my clerical guide. "Oh, well, you know, he can make speeches, and say funny things about parsons, but I don't think he's a bad fellow after all." That was generous. "Bad fellows" ought not to legislate, yet so diverse are the minds of men that possibly not one reader of these lines believes that "only the best" are sent to serve their Queen and country at Westminster. Then I instinctively looked over the land, and saw it was not good nor highly cultivated, and felt very thankful I was not doomed to dwell in that locality with "three acres and a cow." The plan might answer with some persons in certain districts, but to advocate anything like uniformity in respect to it regardless of personal aptitude and natural resources were in the last degree chimerical, and that being so the pastoral dream will never be realised.

We are undoubtedly traversing a beautiful district, but not a rich one

yet now and then evidence is afforded that the land is capable of improvement. Much of it is cold and profitless by want of drainage and much impoverished by masses of twitch (couch). As compared with some districts where high-class farming is practised, the condition of great tracts of land in the Midlands is markedly inferior, and it cannot be satisfactory to either owners or occupiers until more capital, labour, and fertilisers are employed in its management. But we are nearing our rendezvous and find better land and better husbandry.

#### ALDERMINSTER AND ALLOTMENTS.

The village of Alderminster is a model village. Such cottages are seldom seen; they stand in pairs back from the road, covered with climbers, and the front gardens attractive with evergreens and flowers. They were built by the lord of the manor, J. R. West, Esq., and are let with good gardens attached for a shilling a week. If the peasantry here do not know who are their friends they are very obtuse and in need of sound education. They have their allotments too, and on this matter Mr. Williams must allow me to do a simple act of justice, even at the risk of according him a measure of praise which I know he does not covet. If all had done what he has carried out, persons who live by agitation would have been deprived of their weapons. He has a portion of his glebe divided into allotments, and not the worst portion either, but the best, and not distant from the village, but close to it; and not let at a higher rent than that charged to large farmers, but lower. He has also established a custom different from all others of which I am cognisant, and it answers well. It appears to be founded somewhat on that of the Emperor of China and his doctors. So long as His Majesty remains in good health he pays them well; when he is ill he stops their stipends, shrewdly suspecting no doubt they will cure him as soon as possible. Mr. Williams is no rack-renter; he does not tax his tenants on their own improvements, but exactly the reverse. So long as their plots afford evidence of superior culture the regular low rent only is charged, but when signs of negligence are apparent an extra 25 per cent. is imposed—that is, instead of paying £1, the charge is 25s. If this does not effect a cure, the land of the good cultivators is increased, those of the negligent proportionately decreased. It is not often, however, that the rent increase falls in its object, and the tenants are not slow to remind each other if they do not "look up they will have to pay the extra five bob." It is a capital idea and, as started, works well.

#### THE CHURCH AND ROSES.

Alderminster Church is a beautiful structure—a grand old English edifice that has lately been restored. It is cruciform with a massive tower in the centre, and as perfect in its proportions as can well be imagined. It is solid, substantial, and good, with nothing to offend either the ritualist or the puritan. It is ancient, the old consecration mark in the original stone, which was discovered, and is built over the inner porch, being dated, I think, 1160, and the church was assigned to the Abbot and convent of Pershore in 1193. Roses have helped in the restoration of this fine edifice. The vicar, having made himself responsible for a considerable sum, hit on the expedient of selling blooms instead of giving them away to his friends, devoting the proceeds to the restoration fund; the flowers being fine become famed and the demand great. Nor was this all, for purchasers next wanted trees, and Mr. Williams became a Rose commissioner, selecting varieties and advising on their purchase and culture. Just as giving a few cuttings has often made a florist, so has the selling of Roses for a church made rosarians. The vicar deserves a rich harvest this year—but the winter has handicapped him—for he is working hard to accomplish his object in liquidating the claims in respect to the restoration of the fabric that has been so thoroughly renovated and which is answering its high purpose so well.

#### MR. WILLIAMS' GARDEN—ANEMONE APPENINA.

Mr. Williams does not reside at the vicarage, which is too small for a family man, but at Alderminster Lodge, a more commodious and very pleasant residence, built by the late vicar, who evidently possessed taste in planting trees, for handsome specimens of Cedars of Lebanon and other Conifers, with Purple Beeches, a Mulberry and other kinds, including a towering Lombardy Poplar, standing like a sentinel from a base of shrubs, appear to great advantage. Yews have also been disposed, so that when large enough they could be, and are, clipped to form screens and arches, thus at once being useful and ornamental. The lawn slopes some fifty yards southward, then suddenly dips to the boundary walk on the north bank of the Stour, and beyond the little but occasionally active river is a flat and beautiful expanse of country, many acres of which are occasionally submerged, the house and ground remaining high and dry on the eminence above. The garden was gay with bright beds of Tulips; but these were passed as very familiar types of beauty to borders of flowers of a different character and altogether lovely—great masses of *Anemone appenina*, having thousands of *Cineraria*-like bluish grey flowers, some of them 2 inches in diameter. It is not easy to imagine anything more lovely than a score of these on stems nearly a foot high from loose cushions of soft green leaves. But what is the secret of the vigour of this charming Alpine gem in shrubby borders, which more or less are shadowed by trees? The answer is liquid manure given in winter. Mr. Williams must have been reading the *Journal* and testing some of the unorthodox suggestions occasionally found therein, and the experiment has proved a distinct success. The *Anemone* flowers that have covered the border for weeks were twice the size they are usually seen, and their chaste beauty was unmistakable. The roots are never disturbed, and plants spring up in great informal masses, and on that account are perhaps the more enjoyable. It is clear they like liquid manure in the



winter, and the soaking in January benefited everything else in the border, trees and flowers alike.

#### THE ROSERY—A GOOD MANURE.

Then we come to the Rose garden. It is just a slice of one end of the lawn, and divided from it by a Yew hedge, the boundary wall affording shelter from the opposite side, the greenhouse and wall on the north and a tall hedge with outside screen of trees completing the shelter all round. The space may be about 30 to 40 yards wide and 50 to 60 long, sloping to the south. With the exception of a line of Carnations and Pansies, and a bed of Delphiniums on the north or shaded end, it is all Roses, mostly dwarfs, planted 2 to 3 feet apart on the level, with Teas on raised beds on the west border, and some covering the wall. It is plain to see by the stumps that the growth last year was remarkable. Mr. Williams is a close pruner, but the winter's severity left him no choice, and not a few of his plants or bushes have had to be levelled to the ground. But most of them are pushing up fat deep green shoots. So strong are they that many will probably be topped shortly, and there can be little or no doubt that the second or axillary growths will be quite sufficiently vigorous for supporting fine blooms, while a more compact habit of growth will be secured. Roses on walls have not been injured by the winter, and their vigour is extraordinary. A Belle Lyonaise on the stable, a beautiful Rose, but with many growers "shy," has a bud in apparently every shoot, and there are hundreds of them. Pruning to moderately strong hard wood, not close spurring, is adopted with this fine tree. The ground is deeply trenched and well manured. Rose-growing was tried without trenching, "but it would not do" where first-class blooms were expected. The manure used is rich in potash, phosphates, and nitrogen, dry wood ashes passed through earth closets, and it tells its tale wherever it is applied. If any reader should wish to have something of the same nature prepared in a different way here is a simple formula. Take 1 lb. of dry wood ashes, 2 ozs. of bonemeal, 1 oz. of sulphate of ammonia; mix, apply this quantity to a square yard of Rose bed, and await results. This simple mixture will be found good for other plants, crops, and trees that require more support than the soil contains. The same generous treatment accorded by Mr. Williams in his Rose garden enables him to obtain a great quantity of vegetables from a small plot of ground, and a bed of Bath Cos Lettuce with not a blank in it, except by removals for use, would have gladdened the eyes of many a gardener if he had it at home, for such beds were undeniably few and very far between during the first week in May. We are busy "gardening" till nightfall, take a stroll to the tune of the nightingale's trill, retire, for we have a long day before us on the morrow and must be up with the sun. Mr. Williams has an appointment with a friend some miles distant, and I have the privilege of his company.

#### SHAKESPEARE'S LAND.

Stratford-on-Avon is about five miles from Alderminster, and so curiously do counties dovetail into each other, that we have to cut across the corners of two or three to reach the station. The drive is delightful, the morning bright, and the nightingales still singing in the hedgerows. The field culture is also better; the home farm of Mr. West showing what can be done in developing the resources of the soil. It is far within the bounds of truth to say that if all the land in the Midlands were managed like his the produce would be trebled and more. These bright spots demonstrate that the land is capable of improvement, and without better culture it is futile to expect prosperity. But we are nearing the town in which pilgrims from many lands assemble, and must leave farming for a moment. But stay, was not Shakespeare a farmer? If he was not, how came it that he sued Philip Rogers, in the Borough Court of Stratford, for 35s. 10d. for corn delivered to him at various times? He was that, and much more. He was a man of many talents; yet as Emerson says, "they never seduced him into ostentation, nor did he harp on one string; he has no peculiarity; no discoverable egotism; the great he tells greatly, the small subordinately. He is wise without emphasis or assertion; he is strong as Nature is strong, who lifts the land into mountain slopes without effort, and by the same rule as she floats a bubble in the air, and likes as well to one thing as the other." Such is the estimate of the great man by a great essayist. The beautiful church in the valley contains the bones of the world-famed dramatist, preserved, mayhap, by the memorable invocation and the curse that covers them:—

"Good friend, for Jesus sake forbear,  
To dig the dust enclosed here;  
Blest be ye man yt spares thes stones,  
And curst be he yt moves my bones."

Let them rest. His works are imperishable, and his memory appears to be more cherished as years roll round. The fine new Memorial Theatre, to which Mr. Flower has contributed £22,600, and endowed with several tenements, is evidence of this; and the bard's house is prized as a jewel—set, it must be said, in a clean and beautiful town. We did not tarry long, yet just long enough to lose the Worcester train for Stourport, which would be met. What is to be done now? "Oh! I have it; wire Stourport to keep the carriage; go round by Birmingham to Kidderminster, then cut across country, and we shall only keep the coachman a quarter of an hour." The quickly arranged programme was carried out to the letter, and we were next on our way to

#### ABBERLEY HALL.

It was a delightful drive of about seven miles, through a generally well, and in places admirably cultivated, district; orchards near and distant, like masses of silvery clouds, for the Plums and the Cherries were

laden with blossom. This may perhaps be called the Dandelion wine district, for children appeared to be determined to gather all the flowers of that plant, which they sell for 1d. a quart for wine-making in the town. Steadily rising, the rendezvous was eventually reached, nearly 700 feet above sea level; and what a view! Abberley Hall is a noble mansion. On the one side we look down on Witley Court with its golden dome; on the other we see in the distance the mountains of Wales; in the immediate foreground, on the south, is the lofty eminence, Abberley Hill, from which eleven counties are brought within the range of vision; on the north the eye rests on the clock tower, which, taking it all in all, can scarcely have an equal in this country. It is a new, great, and substantial work, and could only be completed at enormous cost. The architect, Mr. St. Aubyn, has produced a monument of art. The clock is illuminated at night, and the chimes, which consist of twenty bells, ranging in weight from nearly 4 tons downwards, fill the air with music every three hours, playing some forty or fifty tunes in turn, full, rich, and melodious. The tune selected for the day, in celebration of some nuptials, was "Haste to the Wedding," and nowhere else could it be similarly rendered. The owner of Abberley, J. J. Jones, Esq., has, moreover, a private band, which discourses in the elegant stand on the lawn during dinner on summer evenings, and on the great monthly luncheon days, when guests assemble from all around. Abberley is one of those country seats where wealth and a spirit of improvement are evidently co-existent. There is no resisting that overpowering impression. It is apparent in everything and everywhere. A wilderness is being transformed into a pleasure ground, and rookeries and rockeries formed in suitable positions; and as water is scarce, a "tank" is being made about 1½ acre in extent, and as it is on a hillside it is a stupendous work, will, in fact, when completed, be a miniature lake with its island and fountain—a great ornament, and of greater value, for pipes will be laid from it for conveying water to the lower grounds and gardens. Of these a rapid glance could only be had. There are good ranges of glass, good Vines, and provision appears to be made for a hountiful supply of hardy fruit. Noticeable was an Eucalyptus tree that had passed the winter with surprising little injury. The high bank on which it stands, and the great altitude, have doubtless contributed to its hardiness. It is pleasing to observe further that the proprietor of Abberley does not live for himself alone. The tenants' dining room, with the different phases of agriculture painted on its walls, affords ample proof of this, for it serves also for a theatre, concert room, or lecture hall for the estate community. Abberley was a great surprise, and the few hours all too short for inspecting its many features of interest, which are such as to create a longing to see them once again.

The homeward journey was *via* Worcester to Oxford, through Evesham and Pershore, famed for fruit culture, and the Plum and Cherry orchards were in the zenith of their spring beauty. A few hours afterwards the "Lights of London" were in view, and the "day into the country" was brought to a close.—A CITY MAN.

#### THE ORCHID SHOW AT BIRMINGHAM.

MAY 12TH AND 13TH.

A BRIEF outline of this Exhibition was given in our last issue, but it well deserves a fuller description than the short time at our disposal allowed us to furnish then. It was a remarkable Show, in every respect highly creditable to those who contributed to its attractions, and to the Curator and Committee of the Society who so ably carried the idea into execution. Most unfortunately, however, the weather was extremely adverse, rain falling heavily on both days; and though the Exhibition must be characterised as a decided success horticulturally, it is feared that there will be some financial loss, as the prize fund was a heavy one and the greater portion was allotted to exhibitors. With such strong local support it may be expected that the experiment will be repeated another year, and should this be the case we hope the weather conditions may prove more favourable, so that a substantial balance may be obtained.

The value of the prizes was noted last week, and some additional notes on the classes may now be given. Four classes were appropriated to nurserymen, but Mr. J. Cypher was the only exhibitor in each, taking the premier prizes in those and two open classes. Very seldom indeed has he scored such profitable victories. The Cheltenham plants throughout were healthy well-flowered specimens, of moderate size, and affording good evidence of the careful treatment they receive. The premier collection of twenty Orchids constituted a beautiful group, comprising the following plants:—*Cattleya Skinneri oculata*, a beautiful variety, of high colour, with a light throat to the lip; it had six racemes of about five flowers each. *Dendrobium thyrsiflorum*, a grand plant, in fine condition, bearing forty handsome spikes; *Cypripedium Lawrenceanum*, a beautiful plant, with two dozen flowers; *Oncidium concolor*, very bright yellow, seven racemes; *Odontoglossum Roezli*, a vigorous plant, with nine racemes; *Cattleya Mossiae grandiflora*, well flowered; *Anguloa Clowesi*, four large flowers; *Laelia elegans*, the same number; *Dendrobium nobile*, in capital condition, bearing some scores of flowers; *Odontoglossum citrosimum*, three racemes; *Cypripedium biflorum*, a pretty variety, with twenty-eight flowers; *Dendrobium crystallinum*, loaded with flowers; *Cattleya Mossiae*, a strong handsome plant, twenty flowers; *Calanthe veratrifolia*, four racemes of its pure white flowers; *Cypripedium villosum*, a strong specimen, with twenty large flowers, a particularly good variety, the flowers suffused with a bright yellowish tint; *Cattleya Mendeli*, with a dozen flowers of a good variety; *Vanda snavis*, well grown, three racemes of nine and ten flowers each; *Laelia purpurata*, fifteen flowers; *Saccolabium*, two racemes; and *Dendrobium chrysotoxum*, twelve drooping racemes of bright yellow. The second place in this class was worthily gained by A. Wills, Esq. (gardener, Mr. J. Morgan), whose plants were smaller than those from Cheltenham, but they were all in admirable health, and the group contained several species or varieties of sterling merit. Especially notable was a grand *Dendrobium*



Falconeri on a block, and representing one of the best varieties we have seen. The flowers were over 4 inches in diameter, with a fine expanded lip, which with the sepals and petals was deeply tipped with an intensely rich crimson. Other remarkable plants were the beautiful but rather troublesome *Lælia majalis*, with three large flowers, the pure white *Dendrobium Dearei*, *Masdevallia amabilis*, a good variety of *Odontoglossum nebulosum*, *Dendrobium chrysanthum*, and *Epidendrum vitellinum majus* exceedingly bright.

The second class in the schedule was for ten Orchids from amateur growers, and the prizes in this were the most keenly contested of all, four good collections being entered. The well-known Birmingham amateur, C. Winn, Esq. (gardener, Mr. G. Barnes), secured the premier honours for most creditable plants, the strong growth, fresh green foliage, and bright clean flowers of which afforded the best testimony of the treatment they received being well adapted to their requirements. The plants shown were as follows—*Cypripedium barbatum*, three dozen flowers; *Masdevallia Harryana*, twenty brightly coloured large flowers; *Odontoglossum Roezli*, fifteen flowers; *Oncidium Marshallianum*, very bright; *Cattleya Mendeli*, eight flowers; *Odontoglossum Alexandræ*; *O. vexillarium*, one of the plants that are especially happy in Mr. Winn's collection, the specimen staged having racemes of six or more flowers each, of fine size, form, and colour; *Cypripedium Lawrencianum*, *Lælia purpurata*, and *Cattleya Mossiæ* being other notable plants. Following very closely in this class was the Right Hon. J. Chamberlain, M.P. (gardener, Mr. E. Cooper), whose plants were healthy, well flowered, and fine varieties; *Oncidium Marshallianum*, *O. concolor*, with six large racemes; *Cattleya Mossiæ*, *Dendrobium thyrsoflorum*, and *Cattleya citrina*, with eleven large yellow fragrant flowers were the leading specimens; *Odontoglossum Halli leucoglossum*, with large flowers, a very pretty variety, also being notable. The third place was accorded to Joshua Fellows, Esq., his examples of *Lælia purpurata*, *Ada aurantiaca*, *Phalænopsis Luddemanniana*, and the wax-like *Chysis bracteosa* were scarcely equalled in the Show. An extra prize was deservedly awarded to E. Wright, Esq. (gardener, Mr. Hodges), for well-grown plants of useful varieties. A class for ten Orchids was also allotted to nurserymen, but Mr. Cypher was the only exhibitor, and won the premier prize for plants of similar merit to those he had in the open class. They were as follows—*Dendrobium crystallinum*, seven racemes; *Lælia purpurata*, eight large flowers; *Dendrobium Bensoniæ*, most profusely flowered; *Calanthe veratrifolia*, *Cattleya Mossiæ*, *Oncidium sphacelatum*, *Cattleya Mendeli*, ten flowers; *Vanda suavis*, *Cattleya Skinneri*, a handsome specimen with six racemes of twenty-three richly tinted flowers; and *Dendrobium thyrsoflorum* with six long racemes, very beautiful.

Two classes were devoted to groups of six Orchids, the premier position amongst the amateurs being gained by the Right Hon. J. Chamberlain for capital specimens of the following—*Dendrobium densiflorum*, forty racemes of flowers; *Lælia purpurata*, seven racemes, three to five flowers each; *Cattleya Mossiæ*, nine flowers; *Lælia elegans*, good variety; *Odontoglossum Alexandræ*, large flower; *Aerides Lobbi*, three long racemes, and *Oncidium Marshallianum* with three spreading panicles of brilliant yellow flowers. Mr. C. Winn and Mr. E. Wright were placed second and third, both showing fresh and well-grown plants. Mr. J. Cypher had the nurserymen's class to himself, and again secured the first prize.

The *Odontoglossums* were not so numerous shown as might have been expected considering the large number grown. The best amateur's collection of ten distinct *Odontoglossums* were contributed by Mr. C. Winn, the plants of medium size, but well flowered, and including fine varieties of *cirrhosum*, *triumphans*, *citrosium*, *Alexandræ*, *Cervantesi*, *prænitens*, *luteo-purpureum*, *vexillarium*, *tripudians*, and *Roezli album*. Mr. J. Fellows was awarded the second prize for some well-grown plants in pans and baskets, admirably flowered, and of excellent varieties. The best were *citrosium*, *vexillarium album*, *Oerstedii*, *Rossi majus*, *Cervantesi*, and *Alexandræ*. Mr. Cypher's plants, which were first in the nurserymen's class, were larger and finely flowered, representing *Roezli* and *Roezli album*, the latter with fifteen flowers, *triumphans*, very richly coloured, *vexillarium*, *Alexandræ*, *Rossi*, dark coloured, *citrosium*, *Halli*, *Pescatorei*, and *Cervantesi*.

*Cattleyas* and *Lælias* were provided for in two classes like the preceding. Mr. C. Winn secured first honours in the amateurs' class with half a dozen medium-sized but healthy and profusely flowered plants of *L. purpurata*, eight large flowers, *L. cinnabarina* and *L. elegans*, *C. Mendeli*, *C. Mossiæ* in first-rate condition, and the new *C. Lawrenciana*, which is fast becoming a favourite. Mr. Chamberlain's second prize collection comprised larger and more showy plants, but they were not so distinct as the first, there being two varieties each of *C. Mossiæ* and *Mendeli*, *L. elegans alba* also being a noteworthy plant. Mr. Cypher followed up his good fortune by gaining another first prize, without any competition, in the class for six *Cattleyas* or *Lælias*, the best of all being a charming example of *C. citrina* on a raft, the plant bearing nine handsome flowers. *D. Mendeli* and *Mossiæ* were both good, as were the varieties of *L. purpurata*, *alba* and *prasiata*.

*Masdevallias* were shown by two exhibitors, and the difference was similar to that in the amateurs' class for *Cattleyas*—namely, one had a collection of well-grown and profusely flowered plants, but less distinct, and the other had smaller plants of less effective species but all distinct. As the prizes were offered for "twelve distinct species," the last-named complied more nearly with the terms of the schedule, but this consideration was overruled in regard to the superior attractions of the others, and Mr. C. Winn was placed first with some beautiful varieties of *M. Harryana* and *M. Lindeni*, some bearing twenty flowers or more, with *M. Veitchi* and a few others. Mr. J. Fellows, who was second, had good examples of *Harryana*, *triangularis*, *Estradæ*, *Schlimi*, *ludibunda*, *Houtteana*, *Veitchi*, *Lindeni*, *igneasplendens*, and *amabilis lineata*.

The prizes for twelve cut spikes or bunches of Orchid flowers were awarded to Mr. J. Cypher, Mr. C. Winn, and Mr. J. Chamberlain in the order named, the species represented in the first-named collection, which were tastefully arranged in ornamental glasses, being as follows—*Cattleyas Skinneri*, *Mossiæ*, *intermedia*, *citrina* and *Triangæ*, *Dendrobiums formosum*, and *nobile*, *Odontoglossum Pescatorei*, *Oncidium ampliatum*, *Vanda suavis*, and *Cypripedium Dominyanum*. Mr. Winn's flowers were chiefly *Cattleyas*, *Dendrobiums*, *Cypripediums*, *Odontoglossums*, and *Masdevallias*, Mr. Chamberlain having *Cattleya citrina* and *Thunia Marshalli* very fine.

The non-competing exhibits comprised several groups of Orchids and

other plants, for which extra prizes and certificates of merit were awarded. Mr. C. Winn had a choice group of Orchids tastefully arranged and representing a number of species. Mr. Hugh Nettlefold, Hall Field, Edgbaston, also contributed a group of Orchids, a specimen of *Dendrobium nobile* being very large, and the variety an excellent one. Mr. J. Chamberlain exhibited a small collection of choice Orchids, amongst which the distinct and curiously coloured *Epidendrum Wallisi* was very notable. J. E. Wilson, Esq. (gardener, Mr. T. Jenks) had a magnificent example of *Dendrobium nobile*, over 4 feet in diameter and loaded with flowers, amply meriting the prize awarded for it. Mr. Hans Niemand, Harborne Road, Edgbaston, showed a light and graceful group of plants admirably arranged by Mr. Spinks, Lilies, Roses, Richardias, and Azaleas forming the foundation of the group, with a groundwork of Ferns and *Isolepis* and bands of the Hoop Petticoat Narciss. Mr. R. H. Vertegaus showed a collection of Alpine plants in many varieties, including some neat and pretty varieties.

First-class certificates were awarded for the following:—*Dendrobium Wardianum Wrighti* (E. Wright, Esq.).—A variety with exceedingly large flowers, the sepals and petals broad, the lip deeply tinged with crimson.

*Gymnogramma Lathamæ* (Mr. W. B. Latham).—An extremely handsome graceful Fern, with long broad fronds very finely divided into linear segments like some of the dimorphous *Aspleniums*. It is of strong habit and one of the most ornamental forms of the genus. It is said to be of hybrid origin, and originated in the Birmingham Botanic Garden since this has been under Mr. Latham's charge.

## MIGNONETTE IN POTS.

(Continued from page 377.)

It is not always convenient to affix the trellises to plants before branches extend, pressure of other work and want of space prevents this being done. At this stage two persons are then required instead of one to do the work, and the shoots are often broken in the operation. To remedy this the central wirework should be dispensed with, and the trellis composed of two circular hoops, instead of four or five, as is usual. When this is done the continuations of the stem must be longer, so that they will reach the outer circle, which leaves the centre entirely open. The plants, even if they have branched freely, can be placed on this trellis without any fear of breaking the shoots, and by one person in less time than two could manage the others.

When the plants are once placed on the trellis, the flowers as they appear should be removed, and the shoots tied down to bring them to the base as early as possible. If a good branching strain is grown they will branch freely enough by the removal of the flowers without having to pinch the shoots. Another matter of some importance at this stage, when a regular head of bloom is required, is to stop the whole of the shoots, not only those that are showing flower, but those that are not so, that the whole will break again and come into flower together. When trained bush-shape, considerable care is necessary in order to have well furnished specimens. The shoots from time to time must be pinched until the whole plant has been well furnished with growing shoots. They may then be allowed to extend and produce their flowers. Before these open, however, some shoots will need re-tying, for they are certain to take the lead of others, and if this is attended to there is no difficulty in having a bush well furnished with spikes from the base to the top.

From the time the plants are established in their largest pots and have been furnished with their trellises they may be grown in deep frames. They appear to do better in such positions with their heads close to the glass than in the greenhouse. They will do very well in the latter structure if they have plenty of light from above, but in whatever position they are grown the pots should stand on ashes or some similar moisture-holding material. If the pots stand upon a dry base the plants do not make satisfactory progress. They are better in frames, because the pots in a large measure can be shielded from drying influences, and evaporation is not so great. Air should be freely admitted on all favourable occasions after the plants are once growing freely, for these plants cannot endure a close confined atmosphere in any stage of growth. Without abundance of air they grow weakly, and no after treatment will enable them to produce large fine spikes. The object to be attained is a strong sturdy growth in all stages of development. When drying winds prevail it is very much better to keep the frame comparatively close and apply a light shade than expose the plants to its withering influence.

By the end of September the earliest plants will have furnished their trellises, and should be removed from the frame to a light cool position in the greenhouse. The plants should be arranged close to the glass, and where a circulation of air can be freely admitted to them. Even during the winter the pots should not stand upon a dry base, and the plants must be kept cool, using as little fire heat as possible. They will do very well in a night temperature of about 40°, on mild occasions 5° more will do no harm, but if sharp the temperature had much better be 2° lower than above. With this treatment the plants will remain in good condition, and the growth they make will be sturdy and strong. From the first batch a succession of flowering plants can be maintained from November until the end of May, or even longer. They are readily retarded by the removal of the flowers. Even those that flower first after they fade and are removed, or cut for use in vases, soon break again into growth, and in due time flower profusely.

During bright sunshine light shade should be provided, yet care must be taken that light is not excluded by the material used. Every ray possible must be admitted them. The growths of the plants are certain to flag if exposed to the full force of the sun during summer, and also during the months of April and May, when the plants are flowering under glass.



One of the main points in the successful cultivation of Mignonette in pots is watering. If carelessly watered failure is certain, and if particular attention in this respect cannot be given the culture of these plants had better not be attempted. The soil in which they are growing should never become dry from the time the seed is sown until the plants are ready for throwing away. If once dry during the growing season the growths become woody and fail to extend, but make small short-jointed shoots that are continually producing small flowers. If dry during the winter the foliage turns brown and disfigures the plants, besides considerably dwarfing the flower spikes. If, on the other hand, the soil is constantly wet by over-watering, they are certain to go off. In either case the fine thread-like roots of these plants quickly perish. When the plants are watered a good soaking should be given, and should then remain until the soil is nearly dry before more is applied. The plants are much benefited by being syringed twice daily during the summer, or whenever the weather is favourable and will allow of this being done. At the same time the walls and vacant portions of the frame should also be well moistened. No feeding will be needed until the plants have filled their trellis. An occasional application of clear soot water is very beneficial; it acts quickly upon the plants, and imparts to the foliage a fine dark colour. The most reliable system of feeding is to apply artificial manure to the surface of the soil. About half a teaspoonful is sufficient for 10-inch pots, and this may safely be applied about every third week. It is surprising how quickly they come up to the surface and take possession of it. When we fed the plants with liquid manure there was always an absence of active roots on the surface; in fact the roots appeared to be driven downwards, which led to this practice being discarded. The surface soil is full of roots and perfectly sweet by the system of feeding with top-dressings.

For cutting in autumn, say from the time the supply outside fails until near Christmas, it is a good plan to prepare a patch of ground by the addition of manure and a little fresh loam, and sow it with seed about the middle of June. The common garden variety will do very well for this purpose. The seedlings, when large enough, should be thinned out, leaving them 3 or 4 inches apart, so that they will have room to develop without being crowded. This bed should be covered with a frame towards the end of September, so as to protect the plants from frost and heavy rains. In most seasons the supply fails outside by the end of October, and cutting can then commence from this frame, which will yield a supply for a long time if protected from sharp frosts by covering the frame with mats. A frame should be sown towards the end of February or early in March, which will yield a supply fully a month before it can be cut from the open borders. This will be found invaluable, and clear the houses and frames of pot plants much sooner than would otherwise be the case. —N. G.

### BATH SPRING SHOW.

MAY 12TH.

As far as the extent and quality of the exhibits were concerned this may be said to be an unqualified success, but unfortunately most unfavourable weather was experienced, and a heavy deficit was the result. Rain was badly wanted, but a heavy and steady downfall, such as fell throughout the Show day, is bound to keep away all but the most enthusiastic of flower-loving visitors, and it was after all poor consolation to the Committee to know that "their loss was the country's gain."

**AZALEAS.**—There were fewer of these than usual, a difficulty having been experienced in keeping them late enough. W. Long, gardener to C. Gardiner, Esq., was awarded the first prize for twelve grand pyramids, which with two exceptions were at their best. Very fine were the specimens of Magnet, Souvenir de Prince Albert, Duc de Nassau, Roi d'Holland, Stella, Iveryana, and Criterion. Mr. W. C. Drummond took the third prize for an uneven and poor collection. The first prize for nine specimens was easily won by Mr. J. Cypher, Cheltenham, who had globularly trained freely flowered examples of Model, Criterion, Nulli, Reine de Pays Bas, and other popular sorts. Mr. H. Keel, gardener to Colonel Landon, also exhibited in this class, but only secured a third prize. Mr. J. F. Mould, Pewsey, was first with six varieties, these including Incomparable and Sankei in good condition; and Mr. A. Hawkins, gardener to T. Jolly, Esq., was third.

**STOVE AND GREENHOUSE PLANTS.**—The twelve flowering plants that gained Mr. Cypher the premier prize were exceptionally fine, and most probably some of the specimens are superior to any of the kind hitherto staged. They consisted of *Dracophyllum gracile*, *Pimelea Hendersonii*, a fine globular plant about 5 feet across and loaded with bloom, *Franciscea eximia*, *Azalea Magnificum* grandly flowered and fully 6 feet through, *Anthurium Schertzerianum densifolium* with thirty-two fine spathes, *Erica affinis*, *E. Cavendishii* richly coloured, *Aphelaxis macrantha purpurea*, *Hedera tulipifera*, *Azalea Cedo Nulli*, *Anthurium Schertzerianum*, a fine form with thirty-six spathes, and *Pimelea spectabile*, a magnificent plant from 5 feet to 6 feet through. Mr. W. Long was placed second with a creditable collection, though not so good as he exhibited last May. With nine plants Mr. J. F. Mould was a good first, having among others medium-sized well-flowered specimens of *Erica ventricosa coccinea*, *E. affinis*, *E. Victoria Regina*, *Hedera tulipifera*, and an *Anthurium*. Mr. G. Tucker, gardener to Major W. P. Clarke, Trowbridge, was a good second, his best being *Anthurium Schertzerianum*, *Erica alba*, and *Clerodendron Balfourianum*. Mr. W. J. Mould, gardener to E. E. Bryant, Esq., was third. The prizewinners with six varieties were Messrs. W. C. Drummond and A. Hawkins. The first prize for a single specimen was awarded to Mr. Cypher for *Anthurium Schertzerianum* Cypheri, this, the largest of all the forms, having thirteen grand spathes. *Ericas* were well shown by several growers, though the majority had half specimens only. Mr. Cypher was first for four varieties, these consisting of *E. ventricosa magnifica*, *E. ventricosa coccinea major*, *E. depressa*, and *E. Cavendishiana*, all of good size and

well flowered. Mr. W. J. Mould was second, and Mr. J. F. Mould third. Mr. Cypher was also first for a single specimen, and Mr. Long second. Fine-foliage plants were not so good as usual. Mr. Cypher was first for fifteen varieties, these including *Kentia Fosteriana*, *Pritchardia pacifica*, *Kentia australis*, *Latania borbonica*, and *Thrinax elegans* in good condition. Mr. W. Long was a fairly good second. Mr. W. C. Drummond was first for nine varieties. Several good groups of Ferns were shown, those from Trowbridge being the most attractive. Mr. G. Tucker had the best fifteen varieties, these including *Gymnogramma sulphureum*, *Asplenium nidus avis*, *Adiantum cuneatum*, *Cheilanthes*, *Lomaria giganteum*, *Cheilanthes hirta*, and the handsome and seldom-seen *Athyrium Goringianum tricolor* in good condition. Mr. W. J. Mould was a good second, and Mr. J. Coke, gardener to A. P. Stancombe, Esq., third. Mr. W. C. Drummond had the best nine varieties, and Mr. W. Marchant, gardener to Jerome Murch, Esq., was second. Roses in pots were scarcely so fresh as usual, but several of the exhibits were very creditable. Mr. W. Taylor, gardener to S. P. Budd, Esq., was deservedly first for nine varieties, of which the best were Catherine Mermet, Pauline Labonte, Celine Forestier, Edouard Morren, La France, and Dupuy Jamain. Mr. J. E. Morris, gardener to R. B. Cater, Esq., was a good second, his best being *Maréchal Niel*, *Rubens*, *Madame Clemence Joigneaux*, and *Charles Lawson*. For six varieties Mr. A. Hawkins was first, the second prize going to Mr. A. W. Southard, gardener to F. J. Walker, Esq. Mr. Cypher was easily first for nine large-flowering *Pelargoniums*, these consisting of C. Outram, Miss Simpson, Decorator, Digby Grand, E. Perkins, *Triomphe de St. Mandé*, *Rob Roy*, and *Lady Isabel*, all fresh and good. Mr. G. Tucker also had several good plants, and took second prize. The best six varieties were staged by Mr. A. J. C. Beas, Bath; and Mr. J. Mattock, Oxford, was a close second. The prizewinners with *Calceolarias* were Messrs. Tucker, W. Robinson (gardener to Lord Justice Lopes), and W. Marchant; and with *Cinerarias* Messrs. J. E. Morris, W. Marchant, and J. Southard, the exhibits being meritorious in each instance.

**ORCHIDS.**—These would appear to be gaining in popularity with the citizens of Bath, and several new growers are commencing to exhibit them, one of the latter, the Rev. E. Handley, taking the first prize for six varieties. These consisted of *Dendrobium thysiflorum*, *Cattleya Mossiae*, *Oncidium Marshallianum*, *Cattleya Mendelli*, *Lælia purpurata*, and *Odontoglossum Roezlii*. This exhibit, as well as others that won prizes, was somewhat marred owing to the pots being "made up" without due regard to the variability of the varieties, two or more forms being included in one make-up specimen. This ought to be avoided in the future. The second prize for six varieties went to Mr. F. Perry, gardener to H. Cruger Miles, Esq., Bristol, who had good examples of *Cattleya Mossiae*, *Oncidium macranthum*, and *Masdevallia Lindeni*. Mr. J. Cypher was third. With four varieties Mr. F. Perry was a good first, his best being *Cymbidium Lowianum*, *Lælia cinnabarina*, and *Masdevallia Lindeni*. Mr. W. J. Mould followed, showing *Aerides Fieldingii* and *Dendrobium thysiflorum* in good condition; and Mr. J. E. Morris was third, noteworthy among his being *Cattleya Mossiae* and *C. speciosissima*. The latter was first in the amateurs' class for a single specimen, having *Cattleya Mossiae* with ten fine blooms; and in the open class the Rev. E. Handley (gardener, Mr. J. Frost) was first with *Odontoglossum citrosum*.

**CUT FLOWERS.**—Cut Roses are invariably good at the Bath Shows, and on this occasion several growers had stands of very fine blooms. Mr. J. Mattock, Oxford, was placed first for twenty-four good blooms in twelve varieties, *Niphetos*, *Perle des Jardins*, *Anna Olivier*, *Souvenir d'un Ami*, *Madame Willermoz*, *Hippolyte Jamain*, *Auguste Rigotard*, *Madame Welch*, and *Jean Pernet* being the best. The second prize was awarded to Mr. W. Taylor, who had Catherine Mermet, *Niphetos*, *Countess of Oxford*, *Madame de Watteville*, and *General Appert* in good condition. Messrs. G. Cooling and Son obtained the remaining prize with a creditable stand somewhat lacking variety, but which included very fine blooms of *Maréchal Niel*, *Paul Neron*, *Countess of Oxford*, *La France*, and *Dupuy Jamain*. With six varieties Mr. E. S. Cole, gardener to W. Pethick, Esq., was first; Mr. J. Curtis, gardener to W. W. Kettlewell, Esq., second; and Mr. W. C. Drummond third. A grand stand of *Maréchal Niel* was shown, not for competition, by Messrs. G. Cooling & Son; Mr. Mattock also brought an extra stand of good Roses; and Mr. T. Hooper, Bath, staged a box of *Maréchal Niel*. The competition with twenty-four varieties of cut flowers was close and good, a considerable number of Orchids being included. Mr. F. Perry was first; Mr. E. Miller, gardener to F. Tagart, Esq., Bristol, second; and Mr. W. J. Mould third. With twenty-four Pansies Mr. T. Hooper was first, and Mr. W. Meddick second; and with twelve varieties Messrs. H. Hooper, G. Hooper, and W. Meddick were the prizewinners. Bouquets were of great excellence, the prizewinners (Messrs. W. Dobson, C. Winstone, and E. S. Cole) all coming from Bristol. Vases of flowers were also as near perfection as possible, the prizewinners being Messrs. W. Dobson, H. Mardon, and E. S. Cole. Mr. J. R. Pearson, The Chilwell Nurseries, Nottingham, exhibited three stands of cut blooms of Zonal *Pelargoniums*, for which Messrs. Pearson have long been noted, and these attracted much attention. A considerable number of the varieties were unnamed seedlings, these being certainly superior to the older sorts. Such named varieties as *Lady Chesterfield*, *Lord Chesterfield*, *Cato*, *Alex. Albrecht*, *Mrs. Gordon*, *Miss Hamilton*, *Aspasia*, *Zelia*, *Octavia*, and *Mrs. H. F. Barker* were among the best represented.

**FRUIT AND VEGETABLES.**—Strawberries were not so plentiful as usual. For six plants in pots Mr. J. Weston, gardener to Rev. C. C. Layard, was first, having *Oscar* in good condition. Mr. G. Pymm, gardener to Mrs. Goldsmith, Trowbridge, was first for a single dish of Strawberries, staging J. Veitch large and bright in colour. Mr. Robinson was second, and Mr. J. G. Kitching third, both having large but rather rough fruit of *President*. Messrs. F. J. Walker and E. T. Hill had the best Apples, and Messrs. F. Evry, E. T. Hill, and A. T. Hall were successful with Pears. There were nine classes for vegetables, all well filled. The most successful exhibitors were Messrs. Pymm, A. Beavis, J. Long, T. Evry, G. Garraway, W. G. Tylee, J. Weston, G. Horsell, F. Evry, and J. Ashton. Classes were also provided for cottagers, and it was a surprise to some to find that these could also exhibit early Potatoes, Asparagus, Seakale, and other choice vegetables.



## ORCHIDS AT UPPER HOLLOWAY.

VISITORS to the Victoria and Paradise Nurseries, Upper Holloway, at this time of year have become accustomed to the beautiful displays of Orchids there provided by Mr. B. S. Williams, but this season he has far surpassed his previous efforts both in the variety and tasteful arrangement of the exhibition. The house devoted to the Orchids is the spacious structure near the office, 100 feet by 22 feet wide, and with a wide path from end to end, allowing visitors to inspect the floral attractions without any inconvenient crowding. The stage on the left hand side when entering has a particularly fine appearance, an appropriate background of Palms and Ferns being formed, the glass being covered to the eaves of the house with green calico, which enables the colours of the flowers to be seen to much better advantage. The Orchids are not arranged formally but freely at different levels, with the racemes or panicles of flowers arching over the others, and with graceful Ferns, Selaginellas, and other fine-foliage plants intermixed. Upon the right hand side larger Palms and Tree Ferns are arranged with Orchids in part, and in a prominent position is a tree stem with branches, upon which are disposed numerous epiphytal Orchids suitable for growing in this way, and very pretty are the numerous plants of *Cattleya citrina*, *Dendrobium* (or *anousmum*), *Odontoglossum Alexandræ*, *Oncidium concolor*, *Epidendrum vitellinum majus*, *Trichopilia coccinea* and *Burlingtonia fragrans*, with a few *Tillandsias* and other Bromeliaceous plants.

In the general effect *Lælia purpurata* takes an important part, the flowers large and some of the varieties very handsome. There are over twenty fine specimens, all flowering freely, and in the other houses there are some scores advancing to maintain the display. One variety named *bella* is distinguished by its purple sepals and petals and intensely rich crimson lip; in contrast with this *L. purpurata alba*, with pure white sepals and petals, has a charming appearance. *Cattleyas*, comprising the floriferous *C. Lawrenciana*, the exquisitely delicate *C. Morganæ*, which was admirably figured in the "Orchid Album" a short time ago, *C. Mendeli*, and *C. Mossiæ*, in many fine varieties, some with twenty or more flowers, add considerably to the beauty of the exhibition. *Odontoglossums* are also numerous, and the varieties of *O. crispum* are remarkable throughout for their high quality, grandly proportioned substantial flowers, pure white, tinted or spotted, the result of many years' careful selections from extensive importations. *O. Pescatorei*, *O. luteo-purpureum*, *O. cirrhosum*, *O. vexillarium* and *O. gloriosum*, *O. citrosum* and its lovely variety *roseum*, suspended in pots from the roof, are extremely beautiful, the drooping spikes showing to good effect in this way. Of *Oncidiums* there are many of the best species, but particularly fine is the brilliant golden *Marshallianum*, which is now in its best condition; *O. concolor* is also abundant. *Epidendrum vitellinum majus* furnishes some bright scarlet tints; *Dendrobiums*, such as *thysiflorum*, *Wardianum*, *draconis*, and others add to the general attractions; *Cypripediums* of many species, varieties, and hybrids, *Vandas* (about twenty plants of *tricolor*, *suavis*, &c.), *Miltonias*, *Lycastes*, *Trichopilias*, and innumerable others are represented by hundreds of plants, and it can readily be imagined that a very beautiful display is produced. The show will attract many visitors during the next few weeks, and there are plenty of plants in reserve to maintain or even increase its interest.

In the other portions of the nursery choice Ferns, Pitcher Plants, *Ericas*, and miscellaneous stove and greenhouse plants, of which the collection is so large, all include much that is worthy of inspection.

## SPRING-ROOTED HYDRANGEAS.

THE method adopted by a great many gardeners of striking cuttings of these very useful and beautiful flowers in the autumn is often attended by disappointment. I have seen a quantity of cuttings inserted in pots at that period, and but a few of them have made roots freely and grown into plants suitable for bearing a good truss or two of blooms the following year. Besides, the room occupied by the young plants during the winter months may be utilised for other purposes. When it is necessary to increase the stock or to obtain young ones, cut back the shoots of the old plants, leaving two or three eyes only of the present year's growth; as soon as the wood is thoroughly ripened place them in a cool frame or greenhouse till January or February, and then shift a few of each variety into a temperature of 55° or 60°. They will soon begin to push out sturdy young growths, which, when 2 or 3 inches long, may be cut off close to the old wood, and so secure a heel to each cutting. Put them singly into small pots and plunge in a gentle bottom heat, or they may be inserted in cocoa-nut fibre in a propagating frame and kept air-tight till rooted, which will take place in about three weeks. They may then be carefully lifted and placed in 3-inch pots. Use for this potting two parts of good fibry loam, one of leaf mould, and one of sand. After potting, place the plants in a house or pit where the temperature can be maintained during the day at 60° to 65°, and 55° to 60° at night. Avoid cold draughts. When the roots have taken hold of the new soil and the plants have made two more growths, shift them into a cooler house. If one head of bloom is only required on each plant, keep them in the 3-inch pots till the bloom begins to form, and then repot or feed them with weak liquid manure and a little soot water, which will give

a healthy appearance to the foliage. But if larger plants are required, transfer into 6 or 7-inch pots, using the same compost as advised, only add three parts loam with a little decayed manure and a 6-inch potful of soot to every barrowful of soil. I saw a quantity rooted in this way early in the spring, and they soon outgrew the autumn-struck plants and looked much healthier. Amateurs who have not much room to spare, and florists who want plants in bloom for market in as short a time as possible, will do well to try this method of raising a stock from cuttings. —G. G., *Hunts*.

## PINCHES' ACME TREE LABEL.

I BEG to submit to your notice a new permanent "Acme" label for trees, shrubs, &c., for which I claim some advantages.

1st. The letters are composed of a non-oxidisable alloy, amalgamated with the surface of hard-rolled zinc.

2nd. The names stand out clearly, the letters being nearly half inch high, light on a black ground.

3rd. There is no raised border, so the water runs off freely.

4th. It is half the weight of any other metal label I have seen, without any diminution of strength.

I hope your critical examination of this new label may be favourable.

—JOHN PINCHES.

[It is undoubtedly a good label, light, strong, durable, and the name



Fig. 74.—Acme Tree Label.

clear and distinct. The stem is a foot long, the lower half galvanised, and an inch wide, the plate on which the name appears in raised letters, 5 inches by 2½ inches. It is very suitable for arboretums, pleasure grounds and fruit gardens, in which the names of the trees are desired to be seen without searching among the leafage, or stooping low to read them.]

## STEPHANOTIS.

I HEREWITH send you a shoot in flower of the old variety, if there is more than one variety of *Stephanotis floribunda*. The plant is over twenty years old, and at present is full of flowers, a number of which have a dozen trusses on each shoot. I daresay there are over a thousand trusses upon the plant. It is planted out in the end of an intermediate stove, and is trained along the roof. It has borne a profusion of flowers every year, but this year it has done better than usual.—R. M.

[As to "varieties" of this favourite climber, we have not seen a better than the specimen referred to, nor a better example of culture. The 6 feet long shoot forms quite a wreath of large trusses of fine flowers relieved by deep green glossy leaves.]

## HABROTHAMNUS FASCICULATUS.

THIS *Habrothamnus* ranks, in my opinion, among the most useful of greenhouse climbers. In a dark corner of a cool greenhouse, where few plants would show to any advantage, this vigorous plant can be grown successfully. It flourishes best on a north aspect and in a low temperature, and its clusters of crimson blossoms against a background of dark green leaves make it a decided acquisition. I have seen a specimen on the back wall of a lean-to greenhouse and vinery which had a stair-like stage rising to within a few feet of the glass immediately in front of it, the unsightly back of the stage completely shrouding it. Side by side with it, and likewise nailed to the wall, were plants of *Abutilon vexillarium igneum* and *Tacsonia Van Volxemi*, both in poor condition; while the *Habrothamnus* was in perfect health and a model of what a greenhouse climber should be, with foliage almost to the ground, and one mass of clustering crimson blossoms. The lower clusters were inferior to those at the top, but the effect was very striking. The treatment is very simple. Cuttings from the young shoots may be inserted during the



present month in a compost of loam, peat, and sand, and placed in a warm greenhouse until they are rooted sufficiently to be potted. They succeed best trained or nailed to a wall, or against a pillar in a cool greenhouse, and on a north aspect as before mentioned. The best soil that can be used is two-thirds loam, one-third peat, and sand sufficient to show. It flowers on the current year's wood, and as soon as the flowers fade should be pruned hard—assuming, of course, that the plant has made vigorous growth and covered the space intended for it. Frequent syringings are necessary as the growth advances, as it is much subject to insect pests. I have never tried it in pots, but I should think that strong plants in 48's or 32's (properly trained) would be useful.—PTERIS.

## ROYAL BOTANIC SOCIETY.

MAY 19TH.

THE first summer Show of the season was held as usual in the large marquee at Regent's Park, where the plants were most tastefully arranged. Orchids and Roses constituted the chief features, and the former have seldom been so well represented at the first summer Show. Stove and greenhouse plants and Azaleas were not quite so numerous as we have seen on some previous occasions, but the specimens were well grown and evenly trained. The weather was not favourable, being wet and dull throughout the day, which lessened the usual attendance of visitors.

**ORCHIDS.**—A magnificent bank of Orchids was formed by the leading exhibits in the classes provided. Mr. J. Douglas, gardener to F. Whitbourn, Esq., Great Gearys, Ilford, was first with twelve specimens, admirable examples of good culture, comprising *Cattleya Mossiae* with over thirty flowers, *Oncidium ampliatum majus* with eight fine panicles of flowers, *Cymbidium Lowianum* with two racemes of about thirty flowers each, *Odontoglossum vexillarium* splendidly flowered, *O. crispum* five spikes, *O. citrosum* three spikes, the flowers of bright rosy colour, two excellent plants of *O. Roezli* grandly flowered, *Dendrobium Wardianum*, and *Cypripedium Laurencianum*. This was a beautiful fresh collection of plants, and they were much admired. Mr. F. G. Hill, gardener to H. Little, Esq., The Barrons, Twickenham, was second; a large *Dendrobium thyrsiflorum* with about two dozen racemes, *Lycaste Skinneri*, and *Laelia purpurata* being amongst the best. Mr. C. J. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, was third, *Masdevallia Veitchi majus* with eleven fine flowers being especially notable. *Dendrobium nobile*, *Masdevallia ignea*, *Dendrobium Falconeri*, and *Odontoglossum polyanthum* were also fine plants.

In the nurserymen's class for twelve plants Mr. J. Cypher, Cheltenham, was first with vigorous well-flowered specimens of *Laelia purpurata*, *Cattleya Skinneri oculata*, *Dendrobium thyrsiflorum* very large, *Vanda suavis*, *Dendrobium crystallinum*, *Odontoglossum crispum*, *Cypripedium biflorum*, *C. villosum*, *Cattleya Mossiae*, *C. Mendeli*, *Odontoglossum citrosum*, and *Cypripedium Lawrenceanum*. Mr. H. James, Lower Norwood, was a close second, *Laelia purpurata* bearing twenty grand flowers being especially handsome. *Dendrobium Jamesianum*, with twenty-flowers, was also very fine, with *Cattleya Mendeli* well flowered.

For twelve Orchids (single specimens) Mr. J. Cypher was again first with well-grown *Cattleyas* and *Laelias*. Mr. H. James was a close second with an interesting collection. Mr. J. Douglas was a good first in the corresponding amateurs' class, followed by Mr. S. Cooke, gardener to De B. Crawshaw, Esq., Rosefield, Sevenoaks, who had two fine varieties of *Odontoglossum crispum*, one named *gigantea* of great size. Mr. W. May, gardener to F. C. Jacomb, Esq., Amhurst Park, Stamford Hill, was also awarded an equal second prize for well-grown plants of *Odontoglossums*, *Cattleyas*, *Laelias*. Mr. W. May was awarded a large bronze medal for a pretty collection, a similar award being made to Mr. T. Banks, gardener to E. Gotto, Esq., Hampstead, for a group of Orchids, and a small silver medal to Messrs. Hugh Low & Co., Clapton, for some choice varieties of *Cattleya Mossiae*, one named *splendidissima* well deserving its name, the flowers of wonderful size and colour. A bronze medal was also awarded to Mr. D. White, gardener to Mrs. F. Watson, Redlees, Isleworth, for a grand specimen of *Cattleya Mossiae* 4 feet in diameter with over sixty flowers and buds.

**ROSES.**—Messrs. Paul & Son, Cheshunt, were first with twenty Roses in pots, admirably grown specimens of medium size, representing some of the leading exhibition varieties with thirty to forty flowers each. Mr. C. Turner was a close second, with beautiful fresh well-flowered plants. Madame G. Luizet, Avocat Duviol, Juno, Countess de Srenye, Dr. Andre, Innocenti Pirola and Madame Lacharme being the best. Mr. Rumsey, Waltham Cross, took the third place with small but very neat plants. Messrs. Paul & Son were first with nine large specimen Roses, as fresh and well flowered as could be wished. Messrs. G. Jackson & Son, Woking, followed very closely. And Mr. Rumsey was third. Mr. P. Perry, gardener to W. G. Rowlett, Esq., The Woodlands, Cheshunt, was also a good exhibitor in the class for six Roses.

**STOVE AND GREENHOUSE PLANTS AND AZALEAS.**—Mr. J. Cypher was the premier exhibitor in the nurserymen's classes, being first both with twelve and six specimens, huge *Ericas*, *Azaleas*, *Anthriscums*, and other standard exhibition plants, which Mr. Cypher grows so well. Mr. H. James was second with twelve large trained specimens, and he was also second with six plants of similar merit. Mr. J. F. Mould, Pewsey, was third with twelve medium size but good plants.

In the amateurs' class for six stove and greenhouse plants Mr. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, was a good first, showing some excellent specimens, *Tremandra ericaefolia* being especially fine. Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, was second, his *Tetratheca ericaefolia* being in magnificent condition. Mr. W.

Chapman was first for ten specimens with magnificently trained plants *Dracophyllum gracile* and *Ixora Dixiana* being in capital condition. Mr. G. Wheeler was second, and Mr. Butler was third.

The grandly flowered plants from Slough gained Mr. C. Turner the first prize for six *Azaleas*, 5 or 6 feet high, as much in diameter, and loaded with blooms. Duc de Nassau, Cheloni, and Comtesse de Flandres were very notable. Mr. Turner was also first with twelve *Azaleas*, smaller, but equally bright plants. Mr. J. Cypher and Mr. Mould secured the prizes for six Cape Heaths, healthy freely flowered plants.

Pelargoniums were a bright feature, Mr. C. Turner as usual securing the leading prizes in the nurserymen's classes for Show and Fancy varieties, followed by Mr. J. Cypher. In the amateurs' classes Mr. D. Phillips, gardener to R. W. Mann, Esq., Langley Broom, Slough, was first, followed by Mr. Hill.

Ferns were shown by Mr. J. Douglas and Mr. R. Butler. Mr. H. James had the best six foliage plants, showing his usual fine specimens. Mr. Rann had the best six foliage plants in the amateurs' class, large specimens of *Crotons* and *Palms*. The hardy and Alpine plants from Messrs. Paul and Son, Cheshunt, T. S. Ware, Tottenham, and J. Douglas, who were awarded the prizes in the order named, included some attractive plants.

Miscellaneous exhibits were numerous and attractive. Messrs. J. Veitch and Sons, Chelsea, had a group of novelties, including some beautiful *Gloxinias*, *Anthuriums*, *Lilium longiflorum*, *Hydrangea paniculata grandiflora*, the graceful *Rosa lucida*, "Rose Button," and varieties of Japanese Maples, with several novelties that were certificated. A large silver medal was awarded to Mr. B. S. Williams for a large and handsome group of Orchids and fine-foliage plants, comprising many varieties and valuable rarities. Messrs. Wm. Paul & Son, Waltham Cross, contributed a charming group of Roses and Ferns most effectively arranged and representing a large number of varieties. (Silver medal.) Messrs. G. Henderson and Son, Pine Apple Nursery, Nursery, Edgware Road, were awarded a silver medal for a group chiefly composed of fine-foliage plants with a few Orchids, *Anthuriums*, and *Pinguiculas* to brighten the display. Messrs. J. Laing and Co., Forest Hill, were awarded a large silver medal for an extensive group of *Begonias*, Orchids, Ferns, *Palms*, *Caladiums*, and other choice plants. Messrs. W. Cutbush & Son, Highgate, arranged a tasteful group of greenhouse plants, bright and interesting.

A bronze medal was awarded to Mr. T. S. Ware for a large group of hardy flowers, bunches of *Ixia crateroides* being very bright. A similar award was also granted for a group of Tree Peonies of many colours. Mr. C. J. Salter had a large group of *Calceolarias* representing an excellent strain, the flowers large and brightly coloured (large bronze medal). Mr. J. Wiggins, gardener to W. Clay, Esq., Elm Villa, Kingston, showed a group of *Cinerarias* and *Pelargoniums* (bronze medal). St. George's Nursery Company, Hanwell, contributed a group of *Calceolarias* (large bronze medal). Messrs. H. Lane and Son, Great Berkhamstead, had a collection of hardy *Azaleas* (bronze medal); and a similar award was made for a group of *Rhododendrons*. Mr. J. James, Woodside, Farnham Royal, Slough, was awarded a small silver medal for a group of exceedingly fine *Calceolarias*, the plants dwarf, compact, and grandly flowered. Mr. D. Phillips had a small group of *Pelargoniums*, well-flowered plants (bronze medal). Mrs. Harry Turner, Langley, was awarded a bronze medal for a box of twelve grand *Maréchal Niel* Rose blooms, wonderfully fine in size and colour.

Botanical certificates were awarded as follows:—To Mr. J. Douglas for *Aeranthus Leonis*; to J. Veitch & Sons for *Phoenix hybrida*, *Rosa lucida* Rose Button, and *Ulmus Dampieri aurea*; to Mr. B. S. Williams for *Alocasia regina*, *Laelia bella*, L. Russelliana, and *Oncidium tetracopsis*; to Mr. J. Douglas for *Cattleya Mossiae Silvia* and *Odontoglossum vexillarium Silvia*; to Messrs. H. Low & Co. for *Cattleya Mossiae splendidissima*; to Sander & Co. for *Odontoglossum Ruckerianum*, and to Henderson & Sons for *Alocasia regina*.

Floricultural certificates were awarded as follows:—To Mr. P. Ladds for Zonal *Pelargonium* Queen of the Whites; Messrs. J. Veitch & Sons for *Rhododendron* President and *Brookianum*. Messrs. J. Laing & Co. for *Begonia Incendie*, *Begonia* Queen Victoria; Mr. T. S. Ware for *Paeonia* Moutan Lord Macartney, Madame de Vitry and Carolina.



## HARDY FRUIT GARDEN.

BEFORE the full pressure of summer work is upon us it will be well to see that our arrangements for the care and training of young fruit trees are so complete as to insure success. Bearing in mind that perfection of form can be had without any loss of fruitfulness, we are bound to do all we can to train our young trees with precision, in view of eventually rendering them objects of beauty, independently of the fruit we hope to have from them. This can only be done while the growth is young and pliant, and therefore it is then that our most anxious careful attention must be given to the work. How frequently do we meet with failures in the form of pyramidal fruit trees! Either they have the serious fault of weak abortive branch growth, or bareness of the stem at bottom, or they are overcrowded with branches, or the form is one of squat ungainliness—a sort of nondescript—that is, neither bush nor pyramid. Yet the chief attraction in a pyramid should, before all things, be found in its symmetrical outline. For example—we have pyramids of 4 feet diameter at base, and



some 7 to 8 feet in height, and we have others 10 feet in diameter at base, and 15 feet high, that are equally symmetrical and ornamental. It is undoubtedly right to retard the upward growth of the centre of the tree till the lower tiers of branches have such a good start that plenty of sap will be diverted into them to sustain health, vigour, and fruitfulness. Keep every branch far enough from the others to afford free admission of light and air to every part of it, for remember the legitimate purpose of the growth of a fruit tree is to bear fruit. To this end also the lateral growth of fruit-bearing spurs should not be crowded thickly together. Cordons and palmette verriers have admirably supplanted the faulty old horizontal espalier. The chief thing demanding early and close attention in training palmette verriers is to give the bottom branches a good start. The full importance of this is realised as soon as we see that the end of every branch is upon a common level, filling the space once devoted to the top branch alone of the horizontal espalier. Diagonal cordons answer best as espaliers, because of the greater length of stem which an angle of 45° affords. This is an attractive, profitable, and elastic method of fruit culture, alike suitable for large or small gardens, the trees being only 18 inches apart. The garden must indeed be small where space cannot be found for a dozen or two of them. We recently saw a small garden where the whole of the bush fruits were trained to strained wires espalier fashion, and certainly we never saw bushes with better promise of an abundant crop of fruit, and the appearance was singularly neat and attractive.

#### FRUIT FORCING.

**PINES.**—Sunshine has of late helped considerably. Such seasonable influences should be fully utilised, as under such conditions the growth in these plants may be advanced more expeditiously and with safety, provided proper care be given to the ventilation, which in sunny weather should be attended to early in the morning, because in Pine cultivation too much moisture cannot be had within the house and the plants, provided it is dispelled off the leaves of the plants before powerful sun acts fully upon them. In order to maintain a genial condition of the atmosphere freely moisten all available surfaces about the houses whenever they become dry. Especially is this necessary just before closing time, which should be sufficiently early in the afternoon to keep the temperature at 85° to 90° for a considerable time afterwards. In dry weather syringing will be needed daily, but this must be regulated by the condition of the house and plants. In the case of the plants the best criterion is the axils of the leaves. Those during the growing season should never be allowed to become quite dry, because many feeding roots exist around the stems of Pine plants which only derive support from the water in the axils of the leaves. Be careful at this season not to allow any plant to suffer for want of water, but give an adequate supply, and in all cases with some stimulant such as guano, but be very careful to avoid giving it too strong. Let the requisite attention be given to shading; the thinner the material is for the purpose the better, as only enough shade is required to prevent the sun scorching the leaves or fruit. Dispense with fire heat as much as possible, but a little will still be necessary in the succession as well as fruiting departments. Continue giving attention as occasion requires to the removal of all surplus suckers, leaving only one or two on each plant for stock, and close at 90° in the fruiting department. Recently potted plants should have a liberal supply of heat, 90° to 95° at the base of the pots will induce roots to take hold of the soil quickly.

**VINES.**—*Houses of Ripe Grapes.*—The temperature should be lower, but sufficient fire heat will be necessary to prevent its falling below 60°, and to allow of a free circulation of air, but sufficient moisture must be present in the atmosphere to prevent injury to the foliage from drought or the spread of insects. Examine the borders, and if sufficiently moist let them be covered with some dry non-conducting material to prevent evaporation, always bearing in mind that Vines carrying ripe Grapes in June and July require more water than they do in the autumn. If water is necessary afford it in the early part of a fine day. Allow a moderate extension of the laterals, which will keep the roots active, prevent the foliage ripening prematurely, and by shading assist in the Grapes retaining their colour longer, as ripe Hamburgs lose colour exposed to the direct rays of the sun for some time, and which must be prevented by shading with a double thickness of herring nets run over the roof lights.

*Grapes Stoning.*—Keep the temperature steady at night—60° to 65° being sufficient, as it is a process that requires time, and the roots are better in advance of the demands than the lacking of supplies by the berries for the completion of the most exhausting process to which Vines are subjected. The borders must be kept well supplied with moisture passed through a rich surface mulching, or, if this be not present, liquid manure should be given, and always in a tepid state, as any check now given the roots may induce shanking. If there is any fear of the latter allow lateral extension so as to accelerate root-action, as shanking is almost always a result of turpid roots. When the stoning is completed give a thorough soaking of tepid water or liquid manure, according to the requirements of the Vines, and mulch with some light non-conducting material. Maintain a moderate degree of moisture in the atmosphere after the Grapes begin to colour for the benefit of the foliage, and to insure the swelling-off of the berries. Afford a gentle circulation of air constantly, increase it early in the morning and with advancing sun, and reduce correspondingly with the declining sun heat, closing sufficiently early to retain sun heat.

*Late Houses.*—Keep the stopping and tying regularly performed, and aim at an even spread of foliage all over the trellis by laying in laterals as long as there is space for full development without crowding. Thin out the berries liberally, giving preference to medium-sized compact bunches,

which finish much better than large loose ones, the berries of the latter having long footstalks. Examine the borders, and top-dress in accordance with the requirements of the Vines. If young and full of vigour, and the borders rich, a slight dressing of short horse-dung will be found most suitable; but if poor in soil and the Vines not very vigorous a good mulching with cowdung will be found highly beneficial.

By this time the thinning of the main crop of Muscats will have been brought to a close, and the borders will be in a fit state for mulching with good manure, and need copious supplies of water or liquid manure. It will be necessary to keep the external borders well covered with leaves or litter to prevent the escape of moisture, and on light soils the application of water or diluted liquid manure may be necessary if the weather be dry.

Lady Downe's, Mrs. Pince, Black Muscat, Black Morocco, and some of the white kinds will now be in flower, and they should be cross-fertilised with Hamburg pollen, it being a good plan to have a Hamburg Vine in flower for that purpose. Muscats are very often associated with late thick-skinned Grapes; and well as the thick-skinned do up to a certain stage in the same temperature as Muscats, the temperature necessary for the proper finish of Muscats is too high for the black varieties, and they often remain deficient in finish. To grow the finer black Grapes they should be kept out of the Muscat house, and have the benefit of a long period for making and maturing their growth and crops. Gros Colman, though it will stand any amount of heat, suffers in such in foliage under bright sun, and can only be obviated by a circulation of air, and allowing a long season of growth.

*Lifted Vines.*—Look well after Vines that were lifted last autumn as well as newly planted young ones, and encourage new roots to find their way to the surface by the use of good stable manure as a mulching. Give the tops generous treatment, and encourage free growth by closing early in the afternoon with plenty of sun heat and atmospheric moisture. Do not exceed a temperature of 60° by night until the roots have taken freely to the soil. Disbud lightly, and stop side shoots at once to secure plump buds, and then allow the laterals to ramble over every part of the trellis.

Afford air more freely to early Vines in pots intended for fruiting next spring, and syringe the foliage to keep it free from insects, as future success is made or marred by the preservation or premature destruction of the main leaves.

#### PLANT HOUSES.

*Greenhouse Rhododendrons.*—The majority of these plants will have flowered, even if they have been subjected to cool treatment during the winter and spring. All that require repotting should be attended to at once, using for a compost good fibry peat with a liberal dash of coarse sand. The pots used should be clean, well drained, and the new soil pressed firmly round the sides of the ball. Care must be taken that the soil is in a satisfactory state for moisture when potted. These plants must be very carefully watered until the roots are working freely into the new soil. Water should be withheld as long as possible after potting, but on no account should they be allowed to suffer during the growing season by becoming dry at their roots; on the other hand, over-watering will prove detrimental. The pots should be stood on some moisture-holding material in the greenhouse or other structure where the house can be kept moderately close and the atmosphere moist. The stage, pots, and plants should be syringed at least twice daily. Under this treatment they will quickly start into growth, which must be encouraged, for it is important to complete it as early in the season as possible if a good supply of flowers is anticipated. They should be shaded from the strong rays of the sun during the time they are making their growth.

*Hybrid Perpetual Roses.*—Plants that have been forced and thoroughly hardened may now be turned out of doors. They must be stood or plunged in a warm sheltered position for a few weeks, and it may prove necessary to protect them occasionally from the effects of cold winds or frost. For this purpose two or more rows of plants may be arranged together, so that stakes can be placed into the ground on each side and tied together at the top, so that a length of tiffany can be placed over them without pressing on the plants. Secure a few strings to the tiffany, so that it can be fastened to the stakes to prevent winds blowing it off. If No 3 tiffany is used a good per-centage of light will be admitted to the plants, even if it is thought wise to keep them covered all day. For the first week after turning them out it will be wise to cover them at night. The foliage must be preserved healthy and fresh, then good results may be looked for another season, which can scarcely be expected if the foliage is destroyed early in the season. These plants should be well syringed on the morning of fine days when they are uncovered.

Tea varieties growing under glass must now be ventilated liberally whenever the weather is favourable. When the blooms are expanding, the blinds, if fixed to the house, may with advantage be used for a few hours to prevent the flowers opening too rapidly. The temperature will now rise by sun heat very high, and if not liberally ventilated they will be attacked by red spider. The syringe must be freely used twice daily, and if attention is paid to watering, the foliage may be kept free from insects. Young plants that have been struck from cuttings this spring must be potted as they require more root room. They must be fully exposed to light in a growing temperature, and the flower buds removed as they appear.

*Daphne indica.*—More of these plants are ruined by being kept in the greenhouse than by any other cause. They cannot be kept too cool, and even during the winter they are quite safe when plunged in coal ashes in a cold frame. They should now be plunged in a cold



frame, if they are not in this position, where they will receive plenty of light without being fully exposed to the force of the sun. The atmosphere about them should be kept moist, and not allowed to suffer by an insufficient supply of water at their roots. At the same time the soil must not be saturated, or the leaves will turn yellow and fall. When growth has been completed they should be plunged in a sunny position outside to thoroughly ripen their shoots, then flower buds are certain to form at the extremity of every one.

*Tree Carnations.*—The earliest-struck plants of these will be well established in 3-inch pots, and ready for transferring into others 3 inches larger. From this stage they should be grown on cool in a cold frame, giving them plenty of air on all favourable occasions. Directly they are rooting freely into the fresh soil they should be carefully barded and plugged outside in an open position. Failure is certain if these plants are drawn up weakly in a close atmosphere. Cuttings first rooted should be placed in 3-inch pots and allowed to become established in gentle heat, then hardened to cool frame treatment. Cuttings may still be struck from plants that have been growing in a cool airy place. They will root freely under handlights in a warm house if kept air-tight and shaded from the sun. Three or four cuttings at this season should be inserted together in small pots, and then shifted without disturbing them. These useful plants do well in a compost of fibry loam three parts, the other being composed of leaf mould and sand. To this about one-seventh of decayed manure may be added.

*Chrysanthemums.*—Plants required for the production of large blooms or good-sized bushes should now be ready for removal from 6-inch pots into 10-inch pots. They should be thoroughly hardy, so that they may with safety be turned outside as they are placed into their largest pots. Provision for a time should be made for shielding the plants from cold cutting winds, or their foliage will be browned and very much cut, and the plants seriously checked in consequence. Late-flowering varieties such as Princess of Teck and others may be transferred into 6-inch pots, and occupy the frames for a time from which the earlier plants have been removed. A good quantity of different sorts, especially Pompons, may now be rooted, and these will make capital decorative plants in 7 and 8-inch pots. A number may also be rooted for planting outside to yield strong robust cuttings in July for flowering in 3 to 5-inch pots. For this purpose select free-flowering varieties such as Elaine, James Salter, Mrs. Dixon, Sœur Melanie, and others that are certain to flower well.

## THE BEE-KEEPER.

### INTRODUCING QUEENS.

WHEN we consider the life-history of the bee it is sometimes difficult to know which to admire most—its wondrous wisdom or its fatal folly. At times it would seem to possess the power of reasoning, at other times it seems deprived of the slightest evidence of instinct. Take for instance the behaviour of bees when deprived of their queen. One would imagine that they would only be too thankful to accept the first one offered to them; but, on the contrary, they will frequently sting her to death, or suffocate her by balling, even when she has been caged for forty-eight hours. It sometimes happens in the early spring, if we have not been careful to see that we have none but young queens, that the exertion of laying eggs has proved too much for the queen after her winter's rest, and she dies worn out, or becomes a drone-breeder.

Now if this happens before drones have been hatched any attempt on the part of the bees to rear queens must prove abortive, but even then they sometimes will not accept a strange queen; and the older the bees, especially those who have hived through the winter, the more difficult it is to introduce a queen.

With newly hatched bees there is much less difficulty, as they seem to take more readily to a strange queen; and when we have a valuable queen we find it most advisable to make an artificial swarm, place this on a new stand some distance away from the old stock, when the larger number of the old bees will return to it, leaving the young bees in their new abode. We place two or more bars of brood with the swarm, and then cage the queen for forty-eight hours, when the young bees will gladly welcome her. This delay seems a loss to the hive of egg-laying; but as the bees have more time to devote to the eggs which have been laid, and the brood is hatching out while the queen is caged, the original stock is not deprived of such a large number of bees, as a 3 lb. swarm with two bars of brood is often as good as a 5 lb. swarm without.

The modes of introducing queens may be divided into two classes—(1) direct, (2) indirect.

In the first the mode of procedure is as follows:—If there is a queen which we wish to remove we take her out of the hive, and then insert the new queen with her attendant bees on a bar in the middle of the brood-nest of the hive from which we have taken the queen, then close up the hive with the carpets, &c., and the operation is completed, the theory being that the queenless bees

take to the new queen and her workers, because they are not excited or nervous, but seem thoroughly at home.

If the queen to be introduced is on an odd frame we must first put her on a frame of the same size as the hive in which she is to be placed, and if we want to introduce her and her workers it is advisable to let them be in a nucleus for a few hours, and especially if they have come any distance. They will soon get quiet, and then can be introduced as before, or the queen can be introduced on a comb by herself if there is any uncapped honey or syrup.

In fixed hives the bees must first be all driven out, as in artificial swarming, a little syrup sprayed over the combs, the old queen removed, and then the bees are shot down on to a board; and as they ascend to the hive, which has been raised from the floor-board, the new queen is allowed to go up with the crowd.

In the indirect mode of introducing, the old queen having been first removed, the new queen is caged on some unsealed honey, and then placed in the middle of the brood-nest, a pipe-cover cage being used. This is made of a piece of perforated zinc, about 1½ inch wide and 4½ inches long, the ends being soldered together; one end of the tube has a circle of perforated zinc 2 inches in diameter soldered over it, and the cage with the queen is twisted into the comb till it reaches the midrib. There are various other kinds of queen cages, but the pipe-cover is the one we always use, as it is very inexpensive and effectual.

Unless obliged we do not attempt to introduce queens either in the early spring or late autumn. When breeding is going on, and honey coming in, with proper precautions queens can be safely introduced, and though we have had sometimes to cage and recage a queen for seven or eight days, as a rule forty-eight hours is quite long enough, and with young bees twenty-four hours; and we generally release the queens late in the afternoon. Bees are kittle cattle, no method as yet has been found to be infallible, and we have often introduced a dozen queens successfully, and then though taking the same precautions lost the next two or three.—A SURREY-SHIRE BEE-KEEPER.

### PLACING AND REMOVING SUPERS.

NOTWITHSTANDING the extreme cold the bees have been very active collecting water, but entirely neglecting peameal since the two good gathering days on the 6th and 7th inst., thus proving bees are not the stupid creatures, gathering more pollen than is necessary to their wants, as is accredited to them by some. On the other hand I think them very wise insects when allowed to follow their own course, and the fool has to be searched for somewhere else than in a hive, although he may be found near it.

I have said the cold weather has been disastrous to the bees, they lie dead in great numbers near their hives; but as I provide my bees with water near them they may not have ventured far away, and the loss may be all visible. Those who do not attend to keeping their bees supplied with water near their hives must have lost many bees.

I observe that although most of my bees have been busy collecting water these cold days, not a pure Carniolian has ventured out. Some may think this a defect in these bees, but I am inclined to think it a property; because if the preserving of bees is the way to success, the Carniolians seem to possess this property naturally.

With all the drawbacks of the season, I am looking forward to the time, which is near, when supering will have to be attended to. In districts where Plums are plentiful a week hence will commence the season, if fine, for both swarming and supering. The former subject need not be discussed here whether it or the non-swarming principle is most profitable. That depends to a great extent on whether the bee-keeper desires to increase his stocks, and whether the season will be a short or a long one. If the former, then the non-swarming system will undoubtedly be the one to carry out. If the season is promising, full-sized tiering supers will give the greatest return. These and every other sort should be kept close and well wrapped up. Small supers with divisible combs holding about 5 lbs. each are what I can sell easiest, and cost little or nothing for packing for market, and are more easily managed in every respect than sections, and the bees take to supers more readily than they do sections—an important matter in bee-keeping.

Many plans have been devised for placing sections in hives. In 1876 I exhibited at Edinburgh a crate similar to the Benthall crate. In 1877 I sent out a great number of hinged frames for sections and some thousands of crates in no way different from the Benthall crate. I have about a dozen inquiries regarding the invention of bee appliances and their inventors. One of these is from my friend Mr. A. Cameron, Blair Athole, and I observe at page 141 "J. H." supports that gentleman's opinion that he was the first to think of the crate in question. I will not dispute it, because Mr. Cameron and myself were often meeting and exchanging ideas, and he was the first to order a quantity in 1877, so in the absence of more proof he deserves the honour.



I observe in the *British Bee Journal* drawings by Mr. Blow of a swarming box for the purpose of taking bees from high trees, used on the continent, "but not in this country." I obtained a first prize for a similar one in 1876, and had one in use long before that. I describe it in my Essay. Another drawing in the same journal is that of a large cage used in joining the queen and nucleus of bees to another hive. This, too, I have used for a quarter of a century.

But to the crate, seeing that Scotland has the priority of the invention, as it has in most things pertaining to common-sense bee-keeping. For the benefit of bee-keepers I will explain the plan I placed the sections in the Perthshire-Lanarkshire crate. When sections are placed with their ends close to the crate, the bees do not fill the sections compactly to the ends; but when they hang in the crate similar to frames, having a quarter of an inch between them and the walls, they more readily fill the section compactly. I made my section from 1 $\frac{3}{4}$  to 2 inches broad, all in one breadth, and along each end of the section I nailed a light fillet of wood and allowed it to project one-eighth of an inch at each end; this served as a distance guide. Then along the sides of the crate I nailed another fillet to suspend the sections on, not unlike the plan for reversible frames. When so placed they are easy of manipulation, and the bees fill them neatly, and they can be sent to market with a greater certainty of safety than when packed hard to the crate. Instead of nailing a fillet on, nails alone will suspend the sections, but are not so satisfactory as the above plan on account of the absence of the distancing between the sections by the fillet. There are other ways of placing the sections, but the above plan was the only one that satisfied me. Queen-excluder, zinc, and separators are both abominations in the hives, and are unnecessary.

Now is the time to be careful that the supplies do not get short in the hive. At the time we put on supers for obtaining a surplus of honey is the very time bees are liable to die through a scarcity of meat. It is, therefore, to be hoped that casualties will not be increased through overlooking giving syrup in time, nor yet causing the bees to lose themselves by flying about through injudicious stimulative feeding.—A LANARKSHIRE BEE-KEEPER.

#### TRADE CATALOGUES RECEIVED.

Edmund Philip Dixon, 57, Queen Street, Hull.—*Catalogue of New and Choice Plants and List of Chrysanthemums.*

Follows & Bate, Dutton Street, Manchester.—*Illustrated Catalogue of Lawn Mowers, Garden Engines, Sprayers, &c.*

J. Carter & Co., 237 and 238, High Holborn.—*List of Choice Plants.*



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Books (W. G.).**—If by the "cheapest" work you mean one that you can obtain for a small outlay you may invest in Pearson's "Vine Culture." It is brief, plain, and sound, price 1s. 1d., post free, from this office.

**Premature Chrysanthemum Buds (Chrysanthemum).**—Remove the buds as soon as they form at this season of the year, but do not top the plants. Your letter, with Mr. Molyneux's reply, will be published in an early issue.

**Weevils on Peach Trees (Constant Reader).**—Your trees are attacked by the destructive weevil *Otiorynchus sulcatus*. See what is said on catching them in reply to another inquiry. After you have cleared the trees tie some cotton wool round the stems or anything else up which the enemy crawls, and smear it now and then with tar.

**Dissolved Bones (J. Button).**—You cannot do better than apply the manure as a top-dressing and water it in. About half a teaspoonful to a 6 or 7-inch pot is sufficient for most plants that require more support than the soil affords. About 2 ozs. to each square yard is a good dressing for lawns and outdoor crops. Your letter is very brief and vague, the reference

to "the dissolved bones" implying that you have a supply, and desire to know how to use the manure. If, however, you wish to know how to dissolve bones, you will find the information on page 263, April 1st, 1886.

**Planting Vines (C. C.).**—You cannot do better than plant Black Hamburghs entirely in your early house for forcing; another house with Gros Colman; and if you mix them with any other kind we advise Muscat of Alexandria. The former does best in the temperature of a Muscat house, and there is never a difficulty in disposing of good examples of the last named. In your third house plant principally Alicante. You might try a few canes of Gros Maroc, which would be ready for cutting before the Alicante. It is a noble-looking Grape, and would probably take well in the market. It is a strong grower and needs plenty of space for the development of its foliage.

**Peach Leaves Perforated (A. G. P.).**—The perforations are made by some weevil eating the leaves while young, their size increasing with the enlargement of the leaves. A white cloth placed beneath the trees after dark, and the tree shook sharply would probably cause the weevils to be taken, but care must be taken not to make any noise, and to operate in the dark, as they fall to the ground on the approach of light and with a noise, and so escape detection. The cause of the blossom buds falling is no doubt due to imperfect bud-formation, probably deficiency of water at the ripening and resting periods. Prolonged cold is very much against the setting of Peach blossoms, and sometimes proves fatal through the imperfect development of the organs of fructification.

**Tomatoes in Open Quarters (Tomatoes for Profit).**—Tomatoes used to be grown much more extensively in open quarters near London than they are now. They were planted a yard apart or a little more, by some growers 4 feet. One stem only was secured to a stake, and when four or five bunches of fruit were set no more growths were allowed to extend, and even some of the large leaves were removed to prevent the fruit being unduly shaded. We have seen several acres of them, but the practice indicated is now practically discontinued in the same district, the "disease" having ruined so many crops; still they are grown to a limited extent in favourable positions, and when the crops are good they pay cultivators well. The crop, however, is regarded as a "risky" one.

**Boiler (Horace).**—A plain wrought iron rivetted saddle boiler is good, not liable to go wrong, and, if properly set, is very efficient. The check-end saddles are, however, improvements upon the old plain saddle; any extra first cost being amply repaid in the economical consumption of fuel through the increased efficiency of the boiler. Terminal end saddles are also efficient, as the full force of the furnace is concentrated on the crown and end of the boiler where the flow pipe is situated. We advise one of the improved forms of saddle, a check end and terminal saddle not being much more complicated than a plain saddle, and properly made are quite as durable. They can be had in either cast or wrought iron. We prefer the latter. A steel one would be still better, as the thinner the boiler plates the more quickly the heat is abstracted by the water from the furnace.

**Weeds in Lawn (Inquirer).**—The weed you have sent is commonly called Crowfoot, a wild Ranunculus, and it grows freely and spreads quickly in damp soil. The mowing machine will not destroy it. You must either dig out the weeds or kill them with acid, one drop of either sulphuric or carbolic acid placed in the heart or crown of each being effective. It is best kept in a stone blacking bottle with a wire handle, and can be applied with a stick with a few notches cut in it near the end, these hold the acid, enough being secured at one dip for destroying three or four plants if close together and the user is expert. It must be applied right in the centre of the weeds alone, not rubbing the stick on the grass, boots, or clothes, as the acid will burn everything it touches. In this way the weeds may be destroyed far more quickly than by digging them up, but if there are only a few of them this effective mode of riddance may be adopted.

**Planting Flower Bed (C. E.).**—Viewed from the ends your proposed arrangement would be fairly effective, but instead of bars across the bed we should prefer to plant each sort in circles, which would be effective from all positions. We could have better expressed an opinion if you had stated the dimensions of the bed, but most probably nine circles would be ample, the central one being filled with Cannas and the others grouped as proposed in your arrangement. The border or edging can still be of light-leaved Pelargoniums, and the remaining spaces filled in with either a good Ageratum, such as Cannell's Swanley Blue, or, better still, Heliotrope Florence Nightingale. If you still prefer your own arrangement, either of the last mentioned would be suitable for the ends. In any case, each sort used would have to be kept within bounds, or they are liable to overrun each other and a confused mass is the consequence.

**Camellias not Expanding (C. H. S.).**—The cause of the Camellia buds not fully expanding is due to the young growths taking the lead. This is often the case with late-flowering varieties or those that are unduly retarded. In such cases it is a good plan to pinch off the young shoots as soon as they appear, which will throw all the resources of the plant into the development of the flowers. The young growths pushing so freely before the flowers have fully opened is due to the luxuriance of the trees. From this cause alone they often fail to flower satisfactorily. We advise you to feed the trees less freely for a time, and induce the formation of hard short-jointed growth by the admission of abundance of light and air. When Camellias are vigorous, the growths starting after the blooms are cut attain quite sufficient strength for forming flower buds and perfecting blooms; hence we do not hesitate to nip off those growths that take the sap from the flower buds. It would not do to similarly suppress the growth of weak plants.

**Woodlice and Mushrooms (S. L. B.).**—You ask "What harm these pests do on Mushroom beds?" The chief harm is they eat the Mushrooms. When beds "swarm" with woodlice they leave very few Mushrooms to develop for the owner. We do not know that they eat "the white threads of spawn just as it comes through the soil before the tiny Mushroom is formed." When Mushrooms form there they must be "tiny." Fine Mushrooms form in or beneath the soil, not from mycelium on the surface, and when "white threads" cover the surface like network it is usually an indication of the covering being too thick and damp, "drawing out" the spawn. We like to see the soil lifted up by great masses of Mushrooms below, and when we see the surface of the bed rise and crack as if from the force of a



miniature earthquake we know what is coming—fat heavy Mushrooms, weighing not unfrequently from half a pound to a pound each. Those are larger than we prefer, but cannot always be prevented. We have not tried sprinkling Mushroom beds with pepper, but should not think it would injure them. The method of entrapping woodlice with old boards, alluded to on page 346, is equally applicable to outdoor and indoor beds.

**Carpet-Bed Arrangement (Merchant).**—What is meant by the ground-work of the plan is all the space surrounding or not occupied by the various figures of the design, which in your case would be Nos. 3, 4, 5, and 6, a single number being sufficient, as one kind of trailing or close-growing plant only is used. Planted entirely with the varieties of carpet-bedding plants you name the bed would be much too dull in appearance, whereas such beds cannot well be too bright. Further, in planting a bed of this description it may also be advisable to outline the figures with some kind of hardy plant, and this admits of the design being filled in again for the winter. If you can purchase cheaply a box of seedling Golden Feather Pyrethrum—these in preference to plants in small pots—they would effectively outline figure 2, both for summer and winter. No. 1 could be outlined with the *Santolina incana*, the centre being filled either with one *Centaurea candidissima*, and surrounded with *Lobelia pumila magnifica* or other good named sort, or five more *Centaureas* may be used if the circle is of good size, among these being mixed either *Lobelias* or *Sedum lydium*. The whole of the centre of No. 2 to be filled with *Alternanthera magnifica*, Nos. 7, 8, 9, and 10 may be lined out with *Cerastium tomentosum*, this being planted so as to form a neat narrow ring, and in the centre of each a plant of *Echeveria metallica* surrounded with *Mesembryanthemum cordifolium*. Edge the bed with *Mesembryanthemum* and fill in the groundwork with *Sedum lydium* or *Herniaria glabra*. The work must be performed very neatly, commencing with a perfectly smooth and level surface, and during the summer the outlines must be preserved by occasionally regulating and pinching back where necessary. *Alternantheras* especially should be planted rather thickly, as they seldom form much fresh growth, neither ought they to be put out before June.

**Spring-pinching and Summer-pruning Fruit Trees (J. E.).**—Undoubtedly any advocated practice should be applied intelligently, and modified as may be advisable under varying circumstances. No rule can be laid down that can be rigidly applied to every tree. The remark that you cite—namely, "Close prune spring growth, but only shorten mid-summer growth sufficiently to admit air and light freely to the spurs"—represents the practice of one of the best fruit growers in this country, and has been practised by numbers of others. It is sound in principle. If spring shoots are pinched as soon as five or six leaves have formed, and the growths of trees are so thinly disposed that the sun and air can act freely on those leaves, they develop and store nutrient matter in the spurs; but if the said shoots are permitted to extend into long branches, and these numerous, the lower leaves are necessarily imperfect, by the more luxuriant foliage above diverting the sap, and at the same time depriving the lower and weaker parts of the prime essentials of health and fruitfulness—light and air. It is obvious, then, to cut back long shoots in summer closely, and to what would under the circumstances be imperfect leaves, would not and could not conduce to the fruitfulness of the trees. After young shoots are pinched in spring one or two of the upper buds will start, and if these are permitted to extend till September, and the "midsummer growth" not shortened to "admit air and light freely to the spurs" (or leaves that perfect them), the spring pinching need not have been done, for certainly it could be of no benefit. We are not now advocating the universal pinching of spring growths, regardless of the condition and character of trees, but showing that the sentence that puzzles you embodies a sound principle. Summer pruning is only good when properly carried out; and when it leads, as often is the case, to subsequent overcrowding, it had better not have been done. When the growth of fruit trees extends and solidifies as made under the direct influence of the sun, fruit buds often form along the entire length of the young wood, not of Peaches and Nectarines only, but Apples and Pears; but then comes an important practical point. In the case of trees innumerable their allotted space is occupied, and such an extension would amount to mere encroachment. Obviously, then, it is a necessity of the case to do what you prefer—to act "according to circumstances." The rule is sound.

**Names of Fruits.**—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. (W. Reading).—Hubbard's Pearmain.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (Henry Murton).—1, *Prunus virginiana*, Virginian Bird Cherry; America. 2, *Pyrus intermedia*, Intermediate White Beam Tree; British. 3, *Polygala latifolia*, Cape Milkwort; Cape of Good Hope. (Houndswood).—*Brassia verrucosa grandiflora* (very fine); the white flower is *Chysis bracteescens*. (W. B. S.).—*Ranunculus aquatilis*. (H.).—*Citrus medica Citron*. (B.).—The Tulip is what is known as a "breeder"—one that has not broken into colours; or a reversion. It has no name. (Leadenham).—It is not the common Hemlock, but the Fool's Parsley, *Aethusa Cynapium*, which is sometimes known as the Lesser Hemlock. (B. D.).—1, *Selaginella cæsia*; 2, *Selaginella stolonifera*; 3, A variety of *S. Kraussiana*; 5, *Pteris serrulata*; 6, *Selaginella Martensi*.

**Dysentery in Bees (Ayrshire).**—The reason why your bees are suffering from dysentery is most probably due to the fact that you allowed them too much room in the hive. When bees are packed for the winter they should not have more than six combs of sealed honey, and all unsealed honey should be extracted, as it tends to dysentery. You do not mention whether the sugar you use is white or brown, as the latter often disagrees with bees. If you have a spare hive remove the bees and the brood into it, rejecting any

soiled combs. See that the bees are kept warm and dry, keep them confined to a few frames by moving up the division board or boards, and feed with candy or thick syrup, 7 lbs. white sugar to a quart of water, but candy is preferable. As the weather gets warmer the bees will be able to take a cleansing flight, and if only dysentery the disease will disappear. Thoroughly clean the old hive before using again.

## COVENT GARDEN MARKET.—MAY 19TH.

TRADE steady, with little alteration in prices. Strawberries in heavy supply, and scarcely cleared at lower rates.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	½ sieve	2 0 to 3 6	Peaches .. .. .	per doz.	6 0 to 20 0
" Canadian ..	barrel	12 0 20 0	Pears, kitchen ..	dozen	0 0 0 0
Cobs, Kent ..	per 100 lbs.	27 6 30 0	" dessert .. ..	dozen	0 0 0 0
Figs .. .. .	dozen	8 0 6 0	Pine Apples English ..	lb.	1 0 1 6
Grapes .. .. .	lb.	2 6 5 0	Plums .. .. .	½ sieve	0 0 0 0
Lemons .. ..	case	2 6 4 0	St. Michael Pines ..	each	4 0 6 0
Melon .. .. .	each	3 0 5 0	Strawberries .. ..	per lb.	2 0 5 0
Oranges .. ..	100	4 0 6 0			

### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	dozen	1 0 to 0 0	Lettuce .. .. .	dozen	1 0 to 1 6
Asparagus .. ..	bundle	2 0 5 0	Mushrooms .. ..	punnet	0 6 1 0
Beans, Kidney ..	lb.	1 6 0 0	Mustard and Cress	punnet	0 2 0 0
Beet, Red .. ..	dozen	1 0 2 0	Onions .. .. .	bunch	0 3 0 0
Broccoli .. ..	bundle	0 0 0 0	Parsley .. .. .	dozen bunches	2 0 3 0
Brussels Sprouts ..	½ sieve	0 0 0 0	Parsnips .. .. .	dozen	1 0 2 0
Cabbage .. .. .	dozen	3 0 4 0	Potatoes .. .. .	cwt.	4 0 5 0
Capsicums .. ..	100	1 6 2 0	" Kidney .. ..	cwt.	4 0 5 0
Carrots .. .. .	bunch	0 3 0 4	Rhubarb .. .. .	bundle	0 2 0 0
Cauliflowers .. ..	dozen	2 0 3 0	Salsafy .. .. .	bundle	1 0 1 6
Celery .. .. .	bundle	1 6 2 0	Scorzoneria .. ..	bundle	1 6 0 0
Coleworts .. ..	dcz. bunches	2 0 4 0	Seakale .. .. .	per basket	1 0 0 0
Cucumbers .. ..	each	0 3 0 6	Sballots .. .. .	lb.	0 3 0 0
Endive .. .. .	dozen	1 0 2 0	Spinach .. .. .	bushel	3 0 4 0
Herbs .. .. .	bunch	0 2 0 0	Tomatoes .. ..	lb.	1 0 2 0
Leeks .. .. .	bunch	0 3 0 4	Turnips .. .. .	bunch	0 4 0 0

### PLANTS IN POTS.

		s. d.	s. d.			s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0	to 13 0	Ficus elastica ..	each	1 6	to 7 0
Arbor vita (golden)	dozen	0 0	0 0	Ferns, in variety ..	dozen	4 0	18 0
„ (common)	dozen	6 0	12 0	Foliage Plants, var.	each	2 0	10 0
Arum Lilies .. ..	dozen	9 0	18 0	Genistas .. ..	dozen	6 0	12 0
Azaleas .. ..	dozen	24 0	42 0	Ivy Geraniums ..	per dozen	5 0	6 0
Begonias .. ..	dozen	6 0	9 0	Lilies of the Valley, in			
Calceolaria ..	per dozen	6 0	12 0	„ pots, per doz.	12 0	18 0	
Cineraria .. ..	dozen	6 0	10 0	Lobelias .. ..	per dozen	4 0	6 0
Cyclamen .. ..	dozen	0 0	0 0	Marguerite Daisy ..	dozen	8 0	12 0
Cyperus .. ..	dozen	4 0	12 0	Mignonette .. ..	per dozen	5 0	9 0
Dracæna terminalis,	dozen	30 0	60 0	Musk .. ..	per dozen	3 0	6 0
„ viridis ..	dozen	12 0	24 0	Myrtles .. ..	dozen	6 0	12 0
Erica, various ..	dozen	12 0	24 0	Palms, in var. ..	each	2 6	21 0
Euonymus, in var.	dozen	6 0	18 0	Pelargoniums, scarlet,	doz.	3 0	6 0
Evergreens, in var.	dozen	6 0	24 0	Spiræa .. ..	dozen	6 0	12 0

### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. ..	12 bunches	2 0 to 4 0	Marguerites .. ..	12 bunches	3 0 to 6 0
Anemone .. ..	doz. bunches	2 0 6 0	Mignonette .. ..	12 bunches	3 0 6 0
Arum Lilies .. ..	12 blooms	4 0 6 0	Narcissus, various	12 bunches	2 0 6 0
Azalea .. .. .	12 sprays	0 6 1 0	" white 12 blooms	0 6 1 0	
Bouvardias .. ..	per bunch	0 6 1 0	Pelargoniums, per 12	trusses	0 9 1 0
Camellias .. ..	12 blooms	1 6 4 0	" scarlet, 12 trusses	0 4 0 8	
Carnations .. ..	12 blooms	1 0 3 0	Pæonies, various 12	b'ooms	0 6 0 9
Cbrysanthemums	12 blooms	0 0 0 0	Roses (indoor), per	dozen	1 0 3 0
Cowslips .. ..	doz. bunches	0 6 0 8	" Tea .. .. .	dozen	0 9 2 0
Cyclamen .. ..	doz. blooms	0 0 0 0	" red .. .. .	dozen	2 0 4 0
Daffodils .. ..	12 bunches	1 6 6 0	Primroses, Yellow,	dozen	
Epiphyllum .. ..	doz. blooms	0 0 0 0	" bunches .. ..		0 4 0 6
Eucharis .. ..	per dozen	4 0 6 0	Primroses, Double	White,	
Gardenias .. ..	12 blooms	1 0 3 0	" dozen bunches ..		0 0 0 0
Hellebore .. ..	doz. blooms	0 0 0 0	Spiraea .. .. .	12 sprays	2 6 1 0
Hyacinths, Roman,	12 sprays	0 0 0 0	Stephanotis .. ..	12 sprays	2 0 3 0
" Dutch .. ..	per box	0 0 0 0	Tropæolum .. ..	12 bunches	1 0 3 0
Lapageria, white,	12 blooms	0 0 0 0	Tuberose .. .. .	12 blooms	1 0 2 0
Lapageria, red ..	12 blooms	1 0 2 0	Tulips .. .. .	dozen blooms	0 2 0 6
Lilac .. .. .	per bunch	2 0 6 0	Violets .. .. .	12 bunches	0 0 0 0
Lilium longiflorum,	12 blms.	6 0 9 0	" Czar, Fr., ..	bunch	0 0 0 0
Lily of the Valley,	12 sprays	0 6 1 0	Wallflower .. ..	12 bunches	2 0 4 0



## THE FUTURE OF FARMING.

Economy of time will undoubtedly receive much more attention in the future than it ever has done even up to the present, for well has it been said that life is much too short for time to be squandered in aimless efforts. Results must be achieved in the shortest surest manner, and in order to do this we must know all about the best way of doing things. Much as we have written about the value of chemical manures, yet we do not forget that they are an expensive



necessity, and we are bound to do all that is possible to avoid the purchase of them. Sheep-folding is one of our great helps in this matter; green crops for ploughing in is another, and when such crops can be obtained as catch crops either before, after, or between the regular cropping, we combine economy of time with economy of money in the best way. Take, for example, that useful crop, Winter Oats. It is generally ripe for harvest by the second or third week in July, and by the exercise of a little promptitude we may readily obtain an autumn green crop after it, which will store the soil with fertility. Or to take some of the land which was foul with twitch at the beginning of the present year, but which the dry weather at the end of April and in the first ten days of the present month enabled us to make clean. Instead of leaving it bare for a summer fallow we have sown much of it with Mustard for ploughing in for a Wheat crop, and after the first crop of Mustard is ploughed in we may repeat the process should showery weather set in.

Perhaps now more than ever it is an exception to see a clean fertile farm in the highest sense of the term. On the day previous to writing this article we travelled upwards of 100 miles by rail and road, through land most of which was under the plough, yet we saw very little evidence of really first-class farming. For mile after mile did we see indications of a want of fertility in the soil, and the contrast of some 5000 acres of well-managed crops which we went to inspect was all the more remarkable. The sad fact was but too evident that second-rate farming was the rule, and first-rate practice the exception. How much better would it be, how greatly to the general advantage, if instead of crying out for legislative help we were to set seriously to work to render the soil more productive! We must remember that it is not Russia or America with which we have only to contend in the Wheat trade. Our own colonies are pouring in supplies to this country, and India is fast assuming the lead of all of them. On May 10th we read in the *St. James' Gazette* that—"The rapid growth of the Indian Wheat trade continues. Our readers will probably recollect that last year our imports of Wheat from India for the first time exceeded our imports of Wheat from Russia. Previously Russia was our second greatest source of supply—the United States first, Russia second, and India, of late years, at some distance third. But last year, for the first time, India took the place of Russia, Russia falling to the third rank. In the first four months of the present year India has distanced Russia and almost equals the United States as a source of Wheat supply. Our total imports of Wheat from India in the past four months amounted to as much as 3,523,795 cwt., while our imports in the same period from Russia were no more than 1,381,980 cwt. There is nothing abnormal in the exports from Russia; it is in the increase of the exports from India that the change has taken place. In the four months just ended we imported one-third more Wheat from India than we had done in the corresponding quarter of the two preceding years." We believe we are correct in stating that this Indian Wheat is grown, harvested, and sent into the market at a cost of 6s. per quarter. We may, indeed, well inquire if the price of Wheat has reached its lowest level in this country. If so, is it possible in the future to continue its culture profitably? Let us not fly to extremes, but rather try to get more out of the soil, to avoid all wasteful extravagant practice, and to strive earnestly to do our work in the best way.

True economy leads us to procure pure seed of best quality, to employ skilled labour, to use the best labour-saving appliances. We must give more attention to those little matters of detail which in the aggregate so seriously affect success or failure. Use no tail corn, no seed that is not pure. Our examination of seed, both in sample and bulk, must be almost microscopic, for the use of really good seed is one of the chief conditions to success. Porous, well-drained soil, clean, well ploughed, and broken up; the

best seed, the best manure, timely culture, crops saved in good condition, careful preparation for market—all go to bring our work to a successful result. Depend upon it, the best is the cheapest in the end, because it is the most profitable. A good sample of corn is by no means so much a matter of locality as is often supposed. Good and bad crops of corn may be seen on different sides of a hedge frequently enough to convince one that we behold the results of good and bad farming. Already in our own practice this year have we had Rye up to the knee on one farm and barely half that height upon another, simply because manure was used in one case and withheld in the other; and even in so simple a matter as a catch crop of Rye for early folding the difference is a serious one. Barley may, perhaps, be an exception to corn generally, the quality of the grain being affected by peculiarities of soil; size, colour, and form all telling upon the sale of it; but much may be done even for Barley by high culture and skilful harvesting.

(To be continued.)

#### WORK ON THE HOME FARM.

The much-wanted rain began falling on the 10th, and germination of Mangold seed followed quickly. All crops have derived much benefit from showers, which were so much needed, and growth now is so quick and strong that corn generally will have become too tall for hoeing a second time where weeds have sprung up again. Much good work was done with horse hoes previous to the rain, both among Wheat and Barley, but in some fields Charlock was so thick that it had to be pulled out of the rows by hand. Land foul with couch grass has been ploughed twice, and many of the grass roots perished from exposure to the dry air and hot sun. Upon one farm where we had thirty acres of foul fallow land last year we have now only fourteen acres, and that is now ready for the Mustard seed. Clover and mixed seeds for layers, as well as for permanent pasture, have sprung up quickly, and the weather is favourable for a quick strong growth. Should showers continue there is yet time for an abundant crop of hay. Meadows having the soil well stored with fertility made considerable progress in growth, even during the recent exceptionally dry weather. The effect of sheep-folding last autumn upon grass land is now visible, especially where Cocksfoot predominates. We have one such piece of grass adjoining a field of winter Oats. The grass had old sheep fattened with corn and cake upon it in folds last autumn; the Oats after Barley had half dressings of home-mixed manures in the autumn and spring. Both grass and corn give promise of heavy crops, and we look forward with confidence to a fair profit upon our outlay there. The best piece of winter Tares we have is after Mangolds, the leaves of the Mangolds having been ploughed in immediately after the roots were cleared off the land. No doubt there is some unexhausted Mangold manure in the soil, but the leaves also imparted a valuable store of fertility to it. We have sown a six-acre field with Mangolds under such favourable conditions that we shall be curious to know the result. Peas were grown there last summer, and when the crop was harvested the land was ploughed and sown with white Turnips. Owing to the drought the seed did not germinate till so late in the season that the Turnip crop was worthless. With the Turnips Peas sprang up thickly from seed shaken out at harvest, and this green crop was ploughed in. Farmyard manure and a full dressing of home-mixed chemical manures was used for the Mangolds, so that, on the whole, we have reason to expect a heavy crop of roots, especially as the young plants have started into growth in showery weather, and we may now hope that it will lay well hold of the farmyard manure before there is more risk of drought.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.						IN THE DAY.				Rain
	Barometer at 32a and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1886.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday .....	9	30.023	59.2	53.8	N.E.	52.0	72.2	46.9	110.1	41.6	—
Monday .....	10	29.839	55.3	51.5	N.E.	52.4	68.2	44.2	110.2	38.6	0.032
Tuesday .....	11	29.845	48.2	41.8	S.E.	52.4	51.1	46.2	53.2	45.6	0.201
Wednesday .....	12	29.668	47.8	47.1	E.	50.4	55.2	44.1	53.4	44.8	1.178
Thursday .....	13	29.090	49.7	49.5	N.E.	50.2	53.1	47.2	65.4	48.0	0.114
Friday .....	14	29.326	48.3	45.6	W.	49.4	51.8	42.6	78.4	36.6	0.017
Saturday ....	15	29.739	47.9	42.0	S.W.	48.4	55.4	35.9	109.4	30.3	0.078
		29.617	51.0	48.1		50.7	58.1	44.0	85.7	40.8	1.620

#### REMARKS.

9th.—Fine, but not bright till after 9 P.M.  
 10th.—Fine, with about equal duration of cloud and of sunshine.  
 11th.—Dull and damp, with frequent rain.  
 12th.—Dull and rainy day and night.  
 13th.—Heavy rain early till 10 A.M.; showery and drizzly day; fine night.  
 14th.—Generally dull and cloudy, but with a little sunshine; showery evening.  
 15th.—Cloud and sunshine; heavy hail shower about 2 15 P.M.  
 A wet and cloudy week, with a great fall in mean daily maximum temperatures: Slight frost on Saturday morning.—G. J. SYMONS.





## COMING EVENTS

27	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
28	F	Quekett Club at 8 P.M.
29	S	
30	SUN	5TH SUNDAY AFTER EASTER.
31	M	
1	TU	
2	W	

### ASPARAGUS.

**W**HY is not this most delicious and highly esteemed spring vegetable more extensively grown in this country? The demand for it in towns is so great that tons of bundles have to be imported from France to meet it. This French supply is highly acceptable no doubt to consumers in Britain, and the early consignments cannot be regarded as prejudicing British growers; but, on the contrary, the early dishes stimulate the taste for more, and would undoubtedly lead to a greater consumption of home-grown Asparagus if it were larger than is usually seen. It is a mistake to suppose that French Asparagus is different in variety from English. It is larger because it is grown better, and the stems are white because they have been earthed up. They can be grown as large in Great Britain as anywhere else with good culture, and be white or green at the will of the cultivator. In a few English gardens Asparagus is produced equal to the French-grown bundles, but as a rule the case is different, and it is a little humiliating to have to admit that during what may be termed the English Asparagus season French consignments compete successfully with home-grown produce in British markets; in fact, so long as the foreign produce is imported it meets with a ready sale, because it is on the whole finer than that grown at home.

Asparagus is very ill treated in hundreds of British gardens. The method of culture is wrong, and the cutting is too severe and too long-continued; hence the plants are weakened. The roots are often sodden with wet when they ought to be drier, and dry when they ought to be moist; and the plants are fed at the wrong time—namely, in the winter when resting, instead of in the summer when working. Salting and manuring Asparagus beds in late autumn often makes the ground like a puddle in the winter, and it is not at all unusual to find the growths in summer drooping from drought. That is not the way to get fine Asparagus.

Except in very wet or low-lying districts, where the water table is within 2 feet from the surface, Asparagus is better grown on the level than on raised beds. A very strong growth in summer is the great desideratum. Secure this, and fine heads will be certain to follow in the spring. A strong summer growth cannot be supported without moisture and manure, and the latter to be immediately available must be soluble. Instead, then, of piling rich solid manure over the crowns of the plants in the winter, liquid manure should be given in the spring and summer, mulching the surface after May to keep in the moisture. That is the way to get strong growth, and there is no other way in which it can be secured so well; and it is very certain that weak pale green "grass" in the summer can only produce small pipe-stem-like growths for cutting in spring. As a top-dressing for Asparagus in the summer a mixture of equal parts of superphosphate of lime and nitrate of soda, is excellent applied at the rate of 2 ozs. to each square yard and washed down to the roots. Salt

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may and should be given just in sufficient quantity to prevent the growth of weeds, for it is obviously useless making land rich to be made poor again by those robbers, and that is just what occurs in the case of numbers of Asparagus beds in this country.

There are hundreds of acres of land, especially near the coast, light in texture, rich in vegetable matter, moist without being swamped, in which first-class Asparagus might be grown with profit to the cultivators if they adopted a sound and generous system of management; and if a great deal more were produced at home and a little less from abroad it would be no worse for British cultivators and consumers. Very good plants can be grown 18 inches apart in rows 3 feet asunder if they are well fed, summer feeding being the most important of all points in growing this favourite vegetable in the highest state of excellence.—AN OLD GROWER.

THIS delicious vegetable does not require half the expense often incurred. These are words I have repeatedly seen as an advertisement in the Journal, and I am very much inclined to think there is a great deal of truth in them.

Now, as I have been cutting some capital heads from beds twenty years old, and this being the height of the Asparagus season, I think perhaps a few remarks on our system of management may not be out of place. In every garden where I have lived [it was always the custom to give the Asparagus beds a heavy dressing of stable manure some time during the winter, and doubtless there are hundreds of gardens where this plan is carried out, but that large weighty produce can be obtained without the aid of stable manure is certain. Now, in the garden here we have no horse or cow manure, so we have to find substitutes, and these we have in earth-closet manure and house sewage.

In the autumn when leaves are plentiful we collect a large heap of these, and then get a quantity of manure from the earth closet (of which we always have a stock under cover), and thoroughly mix with the leaves, then the surface soil is thrown from the beds into the alleys, and a good dressing of the above mixture is put on as soon as possible. We always find it best to scatter a coating of soil over the top, as it keeps the leaves from being blown about; this forms the winter covering, but in addition to this we give the beds thorough drenchings of liquid manure from the sewage tank, not in the winter when the roots are inactive and the ground sodden, but now, and at intervals all through the summer when fresh roots and crowns are fast forming; this supplies them with rich food at a time when most needed.

That the above treatment will produce good results is beyond all question, for we have Asparagus rising out of the ground as large as a fair-sized walking-stick, and the flavour is excellent.—F. H. W.

[It is very rarely we see finer heads of Asparagus than examples we have received from our correspondent. They are a credit to him, and an abundant supply of similar produce is coveted both in private gardens and public markets. It is observable that both our correspondents lay stress on supporting Asparagus during the growing season. They are unquestionably right in their advocacy of supplying the plants with liquid manure from the present time onwards. The practice of covering Asparagus beds thickly with manure in the autumn, raking most of it off again in the spring, then allowing weeds to luxuriate in the summer where it yet lingers, ought to cease. We never "weed" our Asparagus beds, but prevent the necessity by occasional applications of salt, and the manure we apply is appropriated by the crop for which it is intended.]

### COLUMBINES.

AMONG the many showy and useful flowers for adorning our gardens in early summer the Columbines should always be found. They possess an elegance which only needs to be seen to be fully

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appreciated, especially with the long-spurred section, of which the well-known *Aquilegia chrysantha* may be regarded as typical, and which, when well established and covered with its myriads of blossoms, may take a place among the best choice perennials. These *Aquilegias* are easy to cultivate, and their best method of propagation is by seeds, which they yield abundantly, and there is ample scope for those endowed with patience to improve the existing forms of these flowers. In the flower garden, where partial change is needed from the general run of bedding plants, these *Columbines* are specially adapted; and, growing well in ordinary vegetable soil, is only another point in their favour. They make a most pleasing bed alone, or they may with good effect be associated with annuals in the mixed border, or with some dwarf bedding plants. I remember a charming bed in a lady's garden in the vicinity of Bath. It was in full flower at the time of my visit, and despite the gaiety of the other beds near by I found greater pleasure in these *Columbines* (hybrids of *A. californica*) than in all the gaudy colours of the Zonal *Pelargoniums*.

It is not wise, perhaps, to speak in high praise of any group of hardy perennials however meritorious they may be, and their introduction into the flower garden generally, without attempting to show how they may be employed so as to harmonise with other plants around them. For example, in the genus of which I speak, the earliest of its members do not commence flowering till the middle of June, depending in some measure on the season itself, so that we could hardly be content that these should occupy permanent positions in the flower garden, and so long without flowers. In such a case as this, however, there is ample room for introducing a few of the many spring bedding plants planted indiscriminately amidst the glaucous tufts of the *Columbines*. Such as these would make the bed gay ere the *Columbines* expanded, and when these began to wane the *Columbines* would be ready to take their place, and by planting a few white Tobacco (*Nicotiana affinis*) if space permitted a good bed may be made for the rest of the year. Many more examples might be given, but one will suffice, seeing that the plants available for making pleasing combinations in such beds are numerous, and most occupiers of gardens design such beds to meet their especial circumstances and tastes.

It may not be altogether lost if I briefly cite some of the most showy members of the *Columbine* family, and by giving to each its average height and predominant colour, may tend to assist those desirous of embracing one of the most elegant groups of perennials.

*A. ALPINA*.—This is a showy species, growing from 1½ foot to 2 feet high and bearing showy blue flowers; a most desirable plant for the second row in the border or for the higher positions on the rockery. It succeeds well in ordinary sandy loam of good depth made fairly rich, and where possible comparatively moist. It inhabits high elevations in the European Alps, over which it is somewhat widely distributed. This must not be confounded with *A. vulgaris*, flowers of which are of a deeper purple-blue, though the characteristic distinction is in its longer stamens, and larger flowers.

*A. CÆRULEA* (The Rocky Mountain *Columbine*).—Here we have one of the choicest alpine, and one which cannot be too highly recommended. Among hardy-plant growers it is well known, and its unique beauty warmly appreciated. It grows freely in any warm sandy soil (here in passing I may remark that the *Columbines* as a whole object to stiff or cold soils), and grows about 18 inches high; the foliage assumes a deep glaucous hue, and is much divided. From the bushy rootstock arise the somewhat branching flower stems, on which are situate numbers of its lovely blue-and-white flowers. These are erect, and display the flowers to advantage, a combination so charming in the soft blue of the sepals and pure white petals that it has been compared to "a large soft-coloured Clematis," and while I cannot discover the slightest resemblance, it must be regarded by all as one of the handsomest perennials. It flowers in early summer, and lasts a long time in perfection. By saving a few seeds each year and sowing early in January an annual display of this charming plant may be guaranteed, and as I rest in the full belief that no one having once succeeded with it would care to be without it in future, it is worthy any care or extra attention to keep up a good supply. It is worthy of remark, however, that it is of easy culture as compared with some of the other rare species—a point considerably in its favour.

*A. CALIFORNICA*.—A most distinct and highly decorative species from the locality signified in its specific name, and which has, in conjunction with the yellow-flowered *chrysantha*, produced some chaste and elegant hybrids. It attains a height of 2½ feet, and produces flowers of a bright scarlet hue somewhat profusely. If only on account of its distinguishing colour, it is entitled to a first place among choice hardy plants. When established it forms a compact handsome bush.

*A. CHRYSANTHA*.—One of the most showy and floriferous of all the *Columbines*, and one which when well established in a deep rich

soil (which, by the way, all the taller kinds enjoy) attains a height of some 3 feet and nearly as much in diameter. It is at this stage which under good cultivation may be reached in about three seasons that they are admired by all who see them. There is no formality about them, but a natural grace and beauty which all may enjoy owing to their delicate and pleasing shades of colour. It is by letting them alone after being once well planted that they may be had in perfection. It is not uncommon for this species to continue flowering for two or three months, and taking into consideration how charmingly its light golden flowers mingle with other shades of colour it at once stands forth as a valuable plant either in a cut state or for border decoration. I would not advise the planting of this species in shrubberies, for in almost every case it is sure to become crowded by stronger growers. Rather give it a good position in the open border or bed—a central one if possible, where it will have ample room for free development. This species is better known than many, and is quite distinct from any other of this genus.

*A. GLANDULOSA*.—This is not only one of the most lovely species of this genus, but it is at the same time one of the most exquisite of hardy perennials. No greater praise can be accorded it than this, and this is not more than it deserves; and the large handsome flowers, the sepals of which are of a deep rich blue, with pure white corolla, making it one of the most desirable plants for the rockery or for the front row in the border. It grows from 6 to 10 inches high, and should be planted on slightly elevated positions on an even surface. Anywhere in flower it is one of the most conspicuous of the alpine section, and inhabits the Altai Mountains. If disposed in small colonies on level surfaces of the rockery, where a good depth of sandy soil mingled with stones to keep it uniformly moist at the roots can be given it, it will be found to thrive admirably. It deserves every attention and well repays good cultivation.

*A. LEPTOCERAS LUTEA*.—A rather pale yellow-flowering variety, with habit similar to *A. chrysantha*, though not so tall or showy as that species. The spurs are much shorter and not so much recurved. It seldom grows more than 2 feet high, of sturdy habit, and rather free-flowering.

*A. PYRENAICA*.—A very pleasing *Columbine* of dwarf habit and pale violet flowers, best treated perhaps as a biennial to insure a continuance of its flowers annually. It produces seed freely, and these vegetate quickly if sown as soon as ripe. It grows about 10 inches high, and should be included among the choice occupants of the rock garden.

*A. SKINNERI*.—In point of colour we have another very distinct species, the flowers being of an orange-red and slightly tipped with green at the mouth. It grows nearly or quite 3 feet high, though not so bushy or compact as some, but still very interesting and distinct; and then, apart from those above named, we find some useful plants in the forms of *vulgaris*, both single and double. In the latter we have its double white form, which is very useful in a cut state. *A. vulgaris caryophylloides* is also a double, and whose flowers are handsomely striped. *Witmaniana* has flowers of blue, violet, and white, and is a good useful border plant; while in *atrata* we have one of a vigorous constitution and deep reddish violet flowers. The foregoing are among the best of this very pleasing and free-flowering genus of hardy plants. There are, however, many more both of species and forms, and new varieties are continually coming in view. One of these, *grandiflora alba*, is a fine new white with single flowers, good robust habit, 2 feet high, and a welcome addition to the list of good things. In conclusion, I may remark that a wide field is open for improvement among these plants, and their free-seeding qualities and perfect hardiness are points in their character, with easy culture, that cannot do other than make them popular subjects, embracing as they do a flowering period of about four months.—J. H. E.

#### GARDENERS AND PREMIUMS.

I HAVE been reading the contributions on the above subject with great interest. First of all I cannot see why a premium should not be paid by an apprentice in our profession just the same as by an apprentice in any other trade and profession. In most cases there is no distinction made between the young man that paid his premium and the one that paid no premium, nor should there be, for I think that any young man should be appreciated according to his abilities, whether he paid premium or not. Some young men are more fortunate than others in procuring situations in first-class establishments where no premiums are demanded, but there are in most first-class establishments some young men that have paid premiums and some that have not; therefore, it is interesting to hear the different opinions on the subject.

Some years ago I applied for a situation as improver in a noted earl's garden in one of the Midland counties, and received a reply to the effect that £10 was required as a premium. Being very young at that time—viz., seventeen years of age—I had not much money, but I overcame the difficulty by obtaining a friend who was kind enough to advance me the money, on the agreement that I should return it in small payments



monthly, as I could afford it. This I did, and the debt has been repaid some years. In due time I arrived at my situation and found the head gardener a very firm and strict but kind man, just the sort of master any young man should be under. At first I was set to work with the outside foreman until there was a vacancy for me in the houses. As I was a strong lad I set to work with a firm determination to do my duty to the best of my abilities, also to obey both my master and his foreman's orders. Accordingly I began to succeed, and the head gardener took an interest in my welfare and was kind to me; but, as I have said before, was very strict, and, to tell the truth, I sometimes used to think he was far too strict, but I have found out since that it was all for my good.

After working with the outside foreman for two months I was removed into the houses under the foreman there. For ten months I was constantly working with the foreman in all the different departments. When a vacancy occurred in the fruit houses I was put in charge of them, and at the same time the head gardener was taking great interest in me, for he was constantly advising me to keep a diary and to take notes of all outside work that was proceeding. I am now thankful that I took his advice and did so, for in the position I occupy at present I find it greatly to my advantage to be able to refer back some years on different subjects. The head gardener kindly gave me a box of drawing instruments and a book on geometry, so that I could practise drawing plans in the winter evenings. I cannot speak too highly of him, for his conduct towards me was that of an honourable but very firm master; and such it is to every young man that is under him if he tries to do his duty.

After living with him for nearly three years I thought I should like a change, and of course spoke to him about it. He said he would get me another situation if I wished to leave, but I need not leave unless I liked. He obtained a situation as journeyman for me in a first-class establishment, in which I was over three years; therefore, I do not regret in the least having paid my premium.

But perhaps "W. P. R.'s" friend, and some more of your correspondents' friends, were not so fortunate as I was in being apprenticed under a good master. There is, however, no doubt great annoyance to a head gardener when he has some young men to deal with that ignore the foreman's authority, and will not turn out with the other men. I have seen some of the most ignorant fellows that ever entered a garden, who thought that because they had paid a premium they were above the other men, and were not supposed to work, but simply look on and walk about with their hands in their pockets. I have also seen more cases than one where such men have ignored the foreman's authority, and would laugh at him when he corrected them or found fault with their work. I have also seen cases where such men would not turn out with the others, both in the morning and after meals, and have often had to be reprimanded by the head gardener; therefore, had I been "The Earl's Gardener," and had such a young man to deal with, I should have acted precisely as he did, and would discharge any man that did not try to do his duty. But as I am not a head gardener I content myself at present with holding the title of (in an earl's garden)—AN OUTSIDE FOREMAN.

I HAVE read the "Earl's Gardener's" version of the case, which has aroused this correspondence, and am willing to give it respectful consideration. Your correspondent asserts that the "£5 was to be paid down." The young man, on the contrary, says that in the letter stating terms not a word was said respecting the mode or date of payment, and as your correspondent "Another Observer" seems to have interviewed him, I have requested that the letter should be handed over to him.

Contradictions may be expected in this like many other cases, and the truth of some of the statements can only be known to the parties concerned. There are others, however, whose circumstantial evidence we may fairly discuss, and I venture to question the truth of the allegation the young man was incompetent, or, in the words of the principal foreman, as quoted by "Observer," "he was no use at his work," and, as the gardener states, "work that he was engaged for—viz., assisting the foreman furnishing, and filling his time in the houses." Now, I ask, is it reasonable to suppose that a young man brought up in the florist's business with his father, who grows plants, also undertakes furnishing, as well as spending two years in a public pleasure garden where similar work was conducted, could he so helpless as to be of "no good at such work?" I may state that the young man was introduced to me as one requiring a situation, and as there was a vacancy about to take place in this garden, I naturally asked where he had lived and for how long, and why he left. The substance of the replies was given in my first letter, but whether I acted right in making it public instead of making private inquiries, as hinted by "Observer," is really a matter of opinion. Some one has said that "a lie will run round the world before truth puts its boots on," and it might be added that there is nothing like publicity to arrest its progress. If I have effected that object by giving the "Earl's Gardener" an opportunity of making a public denial of the allegations made against him I claim to have done him useful service.

Judging from the young man's appearance I should have had no hesitation in engaging him for a post of 18s. per week and bethy, but the following morning satisfactory replies came respecting one I had communicated with already. I observed the ring, but it made no impression on me. It was a plain article, such as I have frequently seen navvies wear. His early surroundings will account for his personal attire. Like "A Gardener to an Earl" (see page 397), I have no objection to gardeners receiving premiums, provided they give reasonable value in return, as was the case in the gardens that I once served in. The gardener was well educated, and the more the young men sought his assistance with their arithmetic, grammar, drawing, and naming wild

flowers the better pleased he was. This is quite different, as the same correspondent remarks to a young man paying "for the bare privilege of working in the garden." I, like the same correspondent, have received liberal overtures in the premium line, and am at liberty to accept them, but have not thought fit to do so. If I did I should not ask for payment beforehand.

Since writing the above I have received written testimony from a lady as to the young man's ability and taste in furnishing her place when engaged with his father. Whilst in the same service he arranged a group of plants for effect at one of your suburban shows and gained a prize. He also made a bouquet for the same show, and won second prize out of forty competitors. This was selected by one of our Royal Princesses, and the secretary had to seek the maker in order that he might present it to Her Royal Highness. This is the man your readers are asked to believe was "no good at his work."—W. P. R.

[We have received a letter from "Another Observer" quite too late for publication; he, moreover, goes over exactly the same ground as "W. P. R." does, but further states that there is no mention in either a letter or on a post card in his possession from the Earl's gardener to his late pupil relating to either the time or the manner that the former expected the premium to be paid. It appears to us that differences of opinion must of necessity prevail on this particular case, however lengthened may be the discussion thereon. Granting a young man's talents as a decorator and bouquetist, very different work would be required of him in a large private garden; moreover, however able an under gardener may be, he will fail if he ignores the foreman's authority and does not keep proper time. The case having been stated and answered, future communications should pertain to premiums generally, which is a proper subject for public discussion.]

### HELIOTROPES FOR WINTER.

THE fragrant flowers of the Heliotrope—like the Mignonette, are always welcome whenever they can be had, especially during the winter and spring months. It is by no means difficult to grow and prepare the plants for flowering from the end of October until flowers can be gathered outside in July. But the greatest difficulty experienced in many gardens is a suitable structure in which to accommodate the plants during that period. They will not flower under greenhouse or comparatively cool treatment; but to maintain growth and a supply of flowers in succession a temperature of 55° to 60° is required. A supply can be maintained during the months of November and December in an average temperature of 50°, but the plants will fail to flower again until the middle of February, when the days have lengthened and the external atmosphere is becoming warm.

To attain success in the culture of these plants in pots they should be propagated annually. Plants raised from cuttings the same season always flower with greater freedom than old plants. It is a general practice in many gardening establishments to retain standard and pyramidal plants year after year for producing the supply of flowers during the winter and spring. This system is a mistake, for old plants become woody, and in consequence do not grow with the same vigour as young plants. The growth of old plants when confined in pots is very frequently weak, and it ceases quickly during dark sunless weather. To have an unbroken succession of bloom the plants prepared for the purpose must be kept slowly growing the whole time and then flowers are certain, but directly growth is brought to a standstill either by too low a temperature or from any other cause the plants at once fail to flower.

Standard, as well as pyramidal-trained plants, are very effective during the winter when associated with other flowering plants. It is a matter of taste whether these be trained upon wire trellises or not. For our part we do not care for closely trained specimens. Some, however, admire trained plants, and in such cases the ordinary standard trellis provided for Mignonette is not large enough. The size of trellis most suitable depends entirely upon the taste of cultivators. A very serviceable size for standards are those with stems 3 feet in length, and circular heads about 2 feet 6 inches through. A good size for the latter is the same distance at the base as required for the head of the standard, with a central stake about 3 feet high. Pyramidal trellises are easily made by stretching a few wires across the central stake and securing them to the ring at the base, or they may be formed by the means of a few stakes only.

Young plants, which will now be well established, must be potted from time to time as they fill their pots with roots, until they are placed into 10 to 12-inch according to the size of the plants required. They should not be stopped till the stems reach the height desired, and side shoots from the axils of the leaves should be removed. The plants should be first grown in heat, but the temperature should be gradually lowered so that the plants can be grown on under greenhouse treatment from the time they are well established in their largest pots. After



stopping, those plants that are to be trained on standards should be allowed to develop a certain number of shoots until they are sufficiently long to reach the outside of the trellis, when pinching and training should commence. Those intended to form natural heads without the aid of a trellis should be pinched from time to time as a few inches of growth has been made, so that a close compact head will be formed.

Pyramids can be grown from a single plant by pinching the leader as it extends upwards to cause the formation of branches to furnish the base. This takes a much longer time to furnish the trellis thoroughly than when four plants as soon as they are rooted are placed together into a 4-inch pot. The centre plant should be trained upright, and the other three outwards until they are sufficiently long to reach the outside of the trellis; but this will not be the case until they are placed into their largest pots. These should then be pinched, and the central plant about three times before it reaches the limit of the trellis. This is important in order to furnish the base of the trellis, for if this can be accomplished there is no difficulty in covering the upper portion.

Standards and pyramids when trained upon trellises take a longer time to cover them than those having no trellis do to form a good head, therefore they must be grown under glass for fully a month or six weeks, probably more, longer than the others. When the head has commenced forming, and the weather is genial, the plants should be carefully hardened, and then grown on outside for the remainder of the summer. Care must be taken that the plants when turned out are not checked and growth brought to a standstill, or they will fail to make the progress desired to form good heads. The trained plants, when it is certain that the trellises will be well filled with wood, may also be grown outside.

When outside the pots should be plunged if practicable to shelter them from the sun's rays, and to prevent them being dried too rapidly. While outside expose the heads of the plants to full light and sunshine, which will result in the formation of short sturdy well-ripened growth that will be certain to flower well. Do not pinch those plants intended to commence flowering about the end of October after the last week in August. To have good plants with their heads well furnished by that time it is important that an early start be made.

Beautiful plants can also be grown in 5 and 6-inch pots for furnishing rooms or associating with other flowering plants in the conservatory or any other structure where the desired temperature can be maintained. For this purpose root cuttings during May, and transfer them into 3-inch pots when ready. The point of the young plants should be removed as soon as they are established in the small pots, and this practice must be continued until the end of August. By the time the small pots are full of roots the plants will be bushy little specimens with four or five shoots, and be thoroughly hardened ready for turning out of doors by the time they are placed into their largest pots. Press the soil firmly into the pots to insure sturdy growth, and plunge them in an open sunny position. If these plants are well attended to as regards pinching the shoots they will be handsome bushy plants with six to twelve shoots.

While growing *Heliotropes* must never be allowed to suffer by an insufficient supply of water at their roots; in fact in no stage of development should they be allowed to become dust dry. If they are watered carelessly and allowed to get into this condition during the season of growth the wood becomes firm, and they fail to make satisfactory progress. As soon as the plants, whether standards, pyramids, bushes, or small decorative plants in 5 and 6-inch pots, have filled their pots with roots supply weak stimulants every time they need water. Soot water is very beneficial for them, and might with advantage be applied alternately with liquid made from cow manure. Perhaps the safest and easiest method of feeding is to apply a little artificial manure to the surface of the soil about once a fortnight. The large pots during bright dry weather may be mulched with a little short manure.

The plants must be placed in their winter quarters by the end of September, for one cold night or slight frost will ruin them. It is not necessary to give them heat when they are first housed; on the contrary, a cool light airy position is most suitable for them at first. The only care needed while the plants are in a cool house is that the temperature does not fall below 50° at night, or they will be seriously checked. Very little trouble will be needed to maintain this temperature during the following month, and very little artificial heat will be needed in order to do so. The first plants can be brought into flower without fire heat, except on solitary occasions, if the ventilators are kept close, and every advantage taken of sunny days. At that period

of the year if no air is admitted to the plants they will take no harm, for the power of the sun is not sufficiently strong to scorch or injure them. They can be grown and flowered successfully without ventilation. Sufficient air for their well-being during the dreary days of winter finds its way into the house through the doors and laps of glass in the roof. I find no variety better for winter than *White Lady*.—W. B.

## THE INSECT ENEMIES OF OUR GARDEN CROPS

### THE APPLE.

(Continued from page 276.)

A THOUGHTFUL schoolboy, meditating upon the economy of the codlin moth (*Carpocapsa pomonana*, fig. 75), might say to himself, How wise and kind has Dame Nature proved to be in this instance, by thus providing for young folks an abundance of windfalls. Not, indeed, that all the fruit brought down by the summer gales has suffered from this pest, but no doubt it is the cause of the descent of multitudes of Apples and some Pears. Often is the fact that the fruit contains a lively tenant scarcely noticed by the eater, who helps to reduce in this way the number of next season's insects. Named from the Codlin, it is a species really not particular about the sort of Apple, but rather prefers that to the Pear, the moth pursuing the same plan with both, by placing one egg in each fruit visited, generally upon the eye. The emergence from its pupal stage, in which this insect winters, occurs during May, early should the spring be mild. As I have previously remarked in these pages, smouldering fires of weeds have been tried with a view to stop the deposition of eggs by

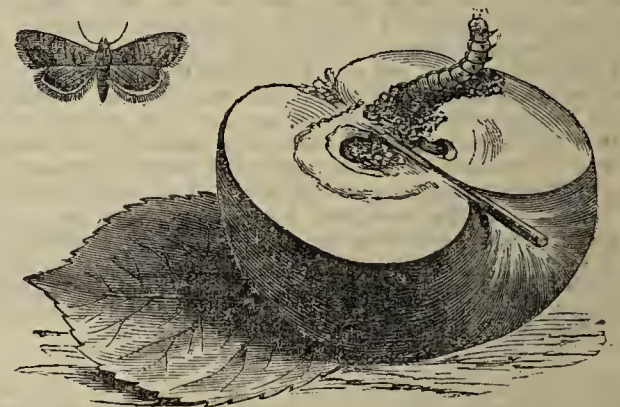


Fig. 75.—Codlin moth and larva (*Carpocapsa pomonana*).

this and other spring moths, but they only give a slight check, the smoke cannot be effectively concentrated upon trees. Slightly magnified the moth is seen to be a pretty species, pale brown, lined in darker tints, and having on the fore wings a patch of reddish gold with a lighter border and hind wings shading from brown to black.

When first hatched the caterpillar of the codlin moth is white, having a black head; it gets rather darker as it grows to the length of half an inch in five or six weeks. Instinctively it avoids touching the core of the fruit for a time, which would send it too speedily to the ground, but passing beside the core works a gallery to the surface; from the orifice of this it can eject what the Germans call its "frass." Then it glides back to the interior, and before the Apple is ripe its enemy, by biting through the centre to eat the pips, occasions its fall and quits speedily as a rule. An effect of the attack of this insect is to hasten the development of sugar in the fruit, so that a windfall would be found nearer ripeness than a sound one picked from the tree. Rather singular is the next move. The caterpillar travels off to some tree or paling, seeking a crevice under bark, where, having hidden in a web, it becomes a chrysalis. With us the insect is now quiescent until the following season. I have no satisfactory evidence that there is a second brood in Britain, but I believe the appearance of part of the spring flight of moths is occasionally delayed, so that there is a succession on the wing. Abroad—that is, on the Continent, the change is speedier, the caterpillars growing rapidly turn to moths in the summer, and these deposit eggs of a second brood on fruit that had previously escaped.

Common sense suggests the prompt removal of windfalls, whether to be eaten or destroyed. It has even been advised, should the wind have left the trees undisturbed, to shake the trees well where this pest has been abundant. Those who are careful to dress both trunks and branches at the suitable time,



obviously kill or remove various insects, and also leave fewer lurking places for others, as in this case. Contrivances have been resorted to which might prevent the caterpillars that have left fruit reaching any refuge, and then crawling about they are likely to be picked off the ground by some insect-eater. Not many fruit-growers, however, seem to think it needful to take such precautions, though perhaps they err in not so doing. Thus, a tarred band round a trunk would stop their approach to it, or a circlet of sand damped with paraffin prove too odorous for them; and such a simple application as a layer of softsoap, over which scarcely a caterpillar, large or small, will crawl if it can be avoided, will be useful, only this is washed away by heavy rain. From standards or young trees any fruit that shows the presence of this insect should be picked off at once.

The extensive and abundant family of the sawflies contains species that rank with the worst enemies of the garden and orchard, some by their ravages committed on leaves and fruits, others by their attacks upon the growing wood of saplings or trees. From the curious resemblance that many of the larvæ or grubs have to those of the moth tribe, they have been called pseudo-caterpillars, but when feeding externally they have a method of swinging their bodies in the air, which is not practised by the larvæ of Lepidoptera, also in their number of legs they exceed those. Much as the Apple suffers from the attacks of true caterpillars, it escapes lightly from most of those of sawfly parentage, even more than does the Pear. It is the custom in some orchards or fruit plantations, for instance, to have an undergrowth of Gooseberries and Currants amongst the trees, and there sometimes the leaves will be stripped, especially those of the former, by the bluish green and black grubs of *Nematus ribesii*. However hard pushed they may be for food, they will sooner, I believe, die on their native bush than ascend an Apple tree, or indeed a Plum or Pear. But the Pear, like the Plum and the Cherry, is victimised by the insidious slimy grubs of *Selandria cerasi* or *pyri* (it appears that we have several species nearly allied and scarcely isolated as yet), these not merely devouring the whole upper surface of many leaves, but injuring the tree by the pernicious character of the substance they exude. Since slugworms, as these sawfly grubs are aptly called, are also found on Hawthorn and Sallow, I see no reason why they should not infest the Apple, but so far they have not been reported, nor have I observed them.

The chief foe to the Apple of the sawfly tribe, but one not excessively abundant as a rule, is *Tenthredo testudinea*. Prof. Westwood seems to have been the earliest to chronicle its occurrence. "At the end of June, 1838," wrote he, "I observed that nearly the whole crop of young Apples in the garden of my residence at Hammersmith had fallen to the ground, being then about the size of small Walnuts, and on opening some of them I found the interior devoured by the larva of a nematus having twenty feet, and a body thickly wrinkled. When alarmed, they emitted an odour like that of the *C. lectularius* or bed bug." This last circumstance is peculiar, because an offensive smell amongst insects is generally given as a means of defence, and larva, feeding as these do, can be in no danger of being devoured by larger insects or birds. It suggests that the species has possibly changed its mode of life. The fly is particularly timid and difficult to capture as it wings its course among the Apple blossoms during May. Above, the body and legs are shining black, the under surface being orange, the wings are transparent and tinged with brown. From the flower the tiny grub passes into the immature fruit, as described by Westwood, but it does not prolong its stay there, as does the caterpillar of the moth mentioned above. At the end of June or early in July, the fruit being about one-fourth the proper size, it has succeeded in stopping farther growth, and the Apple attacked is therefore dropped by the tree. As the grub is then full-fed it quits its abode and enters the earth, not far beneath which it makes a cocoon, abiding there till the following year. Evidently those measures taken for the destruction of insects generally in the surface soil around fruit trees during the winter season will kill most of the cocoons of this fly. The six-footed semi-gregarious grubs of the sawfly genus *Lyda*, have been stated, on rather doubtful evidence, to feed sometimes on Apple.

Almost fifty years ago an entomologist, not a gardener, detected the caterpillar of a moth mining in the shoots of the current year, and generally causing them to wither up. This species also frequents the Pear, but then prefers the solid wood. From its fly-like aspect, coupled with a red band round the body, the moth is called the red-belted clearwing, and in science *Sesia myopæforme*, rather absurdly, for this insect is by no means a short-sighted creature, which is evidenced by its selection of a place for the caterpillars. These are small, very muscular, and with legs; their whole life being passed in the pith or wood as

the case may be, and they turn to pupæ in the spring, the moth emerging about midsummer.—ENTOMOLOGIST.

#### RUSHING INTO PRINT.

"OBSERVER'S" remark to the above effect, in reference to "W. P. R.," page 398, brings a good story to my mind that has the merit of being true, and as there appear to be many anonymous allusions flying about over the premium question there is no harm in relating it; but I leave that to your editorial discretion. The story relates to one the initials of whose name are "W. P. R.," under which signature he has at times written to the horticultural papers, although I do not wish to convey that your "W. P. R." and mine are one and the same person. They may be totally different persons for anything I know, and probably are; but be that as it may, the "W. P. R." I speak of was, a good many years ago, foreman at a place I know particularly well, and on one occasion while there he sent a graphic account to one of the gardening papers of an extraordinary crop of a certain useful and acceptable esculent produced under his charge, signing his name or initials, I forget which now, and giving the name of the place. This he did without the knowledge of his master the head gardener, who did not see the paper in question. Unfortunately, the crop of — that year up to that time had been a failure so far as a supply to the kitchen was concerned, and it so happened that some acquaintance of the employer (who is a nobleman) drew the latter's attention to the paragraph about the remarkable crop of — in his garden as reported. Judge, therefore, of the head gardener's confusion when one day soon after his employer came into the garden, and drawing the paper containing the report from his pocket, observed good-naturedly, "D., I would like to have some of these fine — myself!" The reply of the gardener was, "And you should have had, my lord, if the story had been true; but I never heard of it till this moment." It was the foreman's turn next, and one of the principals in the matter who told me said, "he believed he had a bad quarter of an hour." He did not "rush into print" any more while there; but he did after he left some time, and his gross exaggerations had to be reported to the editor of the paper by the then head gardener of the place. They related to a crop of another kind at the same place—and of course grown when he was there—but which had no existence in reality.—HEAD GARDENER.

#### ORANGE CULTURE IN FLORIDA.

(Continued from page 379.)

**THE AGE OF THE ORANGE TREE.**—The great age to which the Orange tree lives and bears is an important consideration for the colonist, who might, by a little self-denial, and through a judicious first selection and expenditure upon an Orange grove, virtually endow his posterity with an annually increasing income. Risso, in discussing this matter, mentions that, in the convent of St. Sabina, at Rome, there is an Orange tree said to be 600 years old, and at Nice, 1789, there was another which usually bore between 5000 and 6000 Oranges; its trunk took two men to encircle it, its crown was more than 50 feet from the ground, and its age was lost in antiquity. Even in England, Orange-rearing, during a considerable part of the year in the open air, has not been attended with much difficulty, as witness the Baddington orchard in Surrey, of which Bishop Gibson, in his contributions to Camden's "Britannia," says it "was 100 years old in 1695," the Hampton Court Orange trees, some of which are stated to be more than 300 years old; and various gardens in South Devonshire, where, trained against the walls, and only protected with straw mats during winter, are specimens which have flourished for at least a century.

**LARGE ORANGE TREES.**—The following are a few of the large Orange trees in Florida:—The Fort Harley tree, in Alachua County, supposed to be seventy-two years old, which has borne 18,000 Oranges in one season; another in St. John's County yields 15,000; another in Bradford County over 10,000; and a Lemon tree, at Fort Reid, thirty-two years old, has borne over 20,000 Lemons. These are only a few of the large Orange and Lemon trees in Florida.

**MARKETING THE ORANGE CROP.**—Nothing but the superior quality of the Florida Orange has saved it from extinction in the market. It is sad to ponder the losses that have been the result of such gross mismanagement. Many a poor young man, after five or ten years of unremitting toil, had brought his thrifty trees into bearing, and confidently consigned them, duly packed and labelled, to the far-off unknown commission man in New York, Philadelphia, or Chicago. After weeks and months of weary waiting would come a cheque of such a small amount that the grower, eagerly looking over the accompanying letter for the reason, would read: "Your fruit came to hand on the 22nd in bad condition, being two weeks on the road; much was badly frozen, and quickly decayed, &c." Or instead of cheque, perhaps came a letter similar to the above, enclosing a bill for transportation for the fruit that was ruined by the company's neglect. Other fine Oranges, well packed, arrived in good order, and straightway fell into the hands of a "bogus" or "curbstone" merchant, who pocketed the receipts *in toto*, letting the far-off unsophisticated grower whistle for his money. Representatives of the latter class annually make winter trips to Florida, spend their ill-gotten gains in high living at the grand hotels, scatter glittering stencil plates and glowing circulars among the Orange growers soliciting their custom, and depart, like trappers, to await the result after setting their snares. As the fruit began to colour on the trees, the owner would ask his neighbour who he was going to ship his fruit to. The answer would be, "I reckon



I will try S. this year, C. cheated me so last. He talked so fair I could hardly refuse him." No. 1 would answer, "Well, if you trust him I will too." In like manner nearly the whole crop of the neighbourhood would perhaps go to one rascal, and an otherwise thriving community be seriously embarrassed.

This has been the darkest side of fruit-growing in Florida, with exceptions more or less for the better, as the honesty of the dealer and the efficiency of the transportation company were apparent. Last winter the situation became so serious that public meetings were held, and each local paper devoted columns to this important question. The result has been that a "State Fruit Exchange" has been formed, with headquarters at Jacksonville, Florida, incorporated under the excellent State laws, whose stockholders embrace many of the largest Orange growers, none of whom can own but a limited amount of stock. This company has already secured a warehouse and offices in Jacksonville, and its general manager has established agencies among the most prominent and trustworthy firms in each of the large northern cities. The abuses as detailed above, it would seem, are over; so the greatest dread of the settler bids fair to vanish, for the advantages of such a co-operative systematic action are apparent. The Florida Fruit Exchange proposes, with all its advantages, to handle all fruit consigned to it, and remit for the same weekly. Its manager will be in constant telegraphic communication with the great markets, and the law of supply and demand can thus be acceded to, and the gluts that sometimes occur in one city while another is not supplied, can be remedied.

While we do not look for perfection the first year in this untried enterprise, it is yet a step in the right direction, and the noble Florida Orange will be enabled to occupy the position and command the price which its rare qualities entitle it to.

### ROYAL METEOROLOGICAL SOCIETY.

THE usual monthly meeting of this Society was held on Wednesday evening, the 19th inst., at the Institution of Civil Engineers; Mr. W. Ellis, F.R.A.S., President, in the chair. Mr. L. T. Cave and Rev. C. Malden, M.A., were elected Fellows of the Society.

The following papers were read:—1, "The Severe Weather of the Past Winter, 1885-6," by Mr. C. Harding, F.R.Met.Soc. The author showed that the whole winter was one of exceptional cold, not so much on account of any extremely low temperatures experienced, but more from the long period of frost and the persistency with which low temperature continued. In the south-west of England there was not a single week from the commencement of October to March 21st in which the temperature did not fall to the freezing point. In many parts of the British islands frost occurred in the shade on upwards of sixty nights between the beginning of January and middle of March, and during the long frost which commenced in the middle of February and continued until March 17th, the temperature fell below the freezing point in many places on more than thirty consecutive nights. At Great Berkhamsted in Hertfordshire frost occurred on the grass on seventy-three consecutive nights, from January 5th to March 18th. The winter of 1885-86 was the only one in which there was skating on the water of the London Skating Club in Regent's Park in each of the four months, December to March, since the formation of the Club in 1830, and there are but four records of skating in March during the fifty-six years, and none so long as in the present year. With regard to the temperature of the water of the Thames at Deptford, it was shown that the total range from January 8th to March 20th was only 6°, whilst from March 1st to 19th the highest temperature was 36.5°, and the lowest 35°. The temperature of the soil at the depth of 1 foot was generally only about 2° in excess of the air over the whole of England, and from March 1st to 17th the earth was colder than usual by amounts varying from 6.3° at Lowestoft, to 8.5° at Norwood. The facts brought together showed that the recent winter was one of the longest experienced for many years, and that in numerous ways it may be characterised as most severe.

2, "Description of an Altazimuth Anemometer for Recording the Vertical Angle as well as the Horizontal Direction and Force of the Wind," by Mr. L. M. Casella. The author describes an anemometer he has made which records continuously on one sheet the pressure, direction, and inclination of the wind.

3, "Earth Temperatures, 1881-1885," by Mr. W. Marriott, F.R.Met.Soc. This is a discussion of the observations of the temperature of the soil at various depths below the surface, which have been regularly made at 9 A.M. at several of the stations of the Royal Meteorological Society during the past five years. The results show that the temperature of the soil at 1 foot at nearly all the stations in the winter months is almost the same as that of the air, while in the other months of the year the temperature of the soil is higher than that of the air at all except that of the London stations.

4, "Note on the After Glows of 1883-1884," by Mr. A. W. Clayden, M.A., F.R.Met.Soc. The author suggests that the after-glows were the result of the vapour erupted from Krakatau, and that the dust and other ejecta played but a secondary part in the production of the phenomena.

### PROPOSED STRAWBERRY ELECTION.

YOU have held elections of several kinds, and a very great guidance they undoubtedly have been. May I suggest, as the time is now approaching when many will be making fresh plantations, that a Strawberry election would be exceedingly useful, especially if the electors would state the county they live in, their soil, and the sorts they grow.

From the multitudinous sorts advertised in catalogues it is very difficult to make a selection, and it generally happens that on reference to neighbours the answer is either "I don't know what sort it is, but those I have got are very good," very likely that being the only sort he knows anything about, or "You should get Keens' Seeding, Sir J. Paxton, or some other of the widespread well-known sorts." Hoping that you may favourably consider this suggestion.—J. E.

[There was an election of Strawberries a few years ago obligingly conducted by Rev. C. P. Peach, who acted as the returning officer, and the results were published in the *Journal of Horticulture*. It would be useful if growers of several varieties were to give a selection of those they find best for insuring a supply of fruit from the earliest to the latest period of the year, also the most productive and useful varieties for market and preserving. It is obvious, however, that the positions the plants occupy have an important influence on the duration of the Strawberry season, early varieties on warm borders and late sorts on northern aspects accelerating and retarding the ripening of the fruit. We will readily publish lists, with hints on management on the lines indicated, that may be sent to us by cultivators. If more than twelve varieties are named it would be useful to append a mark against the best six for succession, and the best three for market; also to state the nature of the soil, as strong, medium, or light in texture.]

### VIOLETS.

(Continued from page 376.)

THERE are places in every garden devoted to the commoner flowers where they often afford an agreeable surprise. Violets are spoiled by petting, which only makes the plant gross, sparse-flowering, and tender. Sturdily reared and properly tended plants only are hardy and floriferous. Shrubbery borders, the space in front or between, not under shrubs, or where the ground is preoccupied by their roots, kept free of weeds, and pointed over once a year with an occasional surface dressing of leaf soil, the *débris* of the rubbish heap, or well-decayed manure. Odd corners about the grounds, some in the sun, others in the shade. Borders at the side of walks—anywhere except beneath trees that so occupy the ground with their roots as to convert it into a barren and dry land in summer. Eligible places are found alongside of Gooseberry or other hush fruit in the borders of kitchen gardens where the Violet plants have the benefit of hushes' shade and shelter without being overhung. The most suitable places are those where there is slight shade from summer sun, as east, west and north borders with shrubs at the back, full exposure overhead in winter, but with screening plants, shrubs, fences, or low walls near, and with a view to late blooms north borders permanently shaded.

Dry places, whether beneath trees, rubble and gravel, shallow soils, hot and dry, in which the plants are likely to be sunburnt, and wet places in which water stands for any length of time after rain are not suitable for Violets. Violet essentials are light, not glare; shade, not gloom; free percolation of water through the soil, not drought; moisture, not water lodging, making the soil sodden and sour; and shelter, shielding from scorching summer sun, and screening from winter's cold.

*Soil and Preparation.*—Violets will grow in almost any kind of soil; good loam, however, is the most suitable, but as the soil of gardens differs according to location it will be necessary in some cases to make additions of other material to render it more suitable. A good friable loam in that happy medium that cannot be classed as heavy or light is everything desired. It will only need turning with a fork a good foot depth. Light soil should have some pulverised clay mixed with it; that is best which has been exposed to the atmosphere some time, so as to have become dried through or subjected to frost, or it should be chopped and mixed with the soil thoroughly to the extent of half if very light, and lesser proportion according to the lightness of the soil. Heavy soil will be improved by the refuse of the potting bench, corks included, burnt clay, brickbats broken small, ashes, and road scrapings. Charred refuse may be used in a moderate proportion, and similar remarks apply to old mortar rubbish. There must be a thorough mixing of the additions with the original soil. One-third or a dressing 4 inches thick may be given of the first named material, and it is better to mix two or more of the materials together, as for instance the refuse of the potting bench and brickbats, or rough ashes and road scrapings, and better still, form as many of the materials named as can be placed into a compost where the soil is very heavy, and in less proportion according to the tenacity of the soil. Alluvial soils may have applications of old mortar rubbish, and peaty soils are the better for lime dressings, and preferably in the old mortar state to fresh. Unless the soil is very poor manure is not advisable. It tends to induce a leafy growth, and the plants are more susceptible of injury from frost. If any manure is given it should be thoroughly decayed. Cow manure is the best for light soil, horse or stable manure is most suitable for heavy soil.

The additions of compost will raise the soil into slight mounds. This is all the better, as Violets like hills, and so far from detracting from the appearance of the borders, is infinitely better than the flat surface so characteristic of the monotonous flower and shrubbery border; besides, it allows water to drain away from the collar or necks of the plants. In mixing the added material with the natural soil let it be done thoroughly and a foot deep, forming it into a hillock with flattened top, molehill fashion. Stations for single plants ought not to be less than a foot across, for three plants 2 feet, and for five to seven plants a yard wide. These should be made some time before planting, and the more frequently they are turned in fine dry weather the better the Violet plants will succeed afterwards. If lines are wanted in



borders ridges will take the place of hillocks, and should be 12 to 18 inches wide and rounded at top.

**Plants and Planting.**—The most suitable plants are those taken from outdoor-grown stools. The old stools or plants should be taken up after flowering, or at the close of April or early in May. It will be found that there are plants of two descriptions—viz., runners of last year with more or less roots, and suckers that emanate from the stem of the plant, some, if not all, of which have roots of their own. These two kinds are suitable for immediate planting after being detached or separated from the parent. They should have the runner wire and any large old leaves removed in trimming prior to planting, which will increase the length of the stem of the runner and facilitate the operation, and suckers should be treated similarly in respect of the old leaves; but in each case all the fresh, green, healthy leaves should be carefully preserved, and any straggling or long root stem of the sucker shortened, preserving, however, a good amount of roots to each. Runners are best; the suckers, however, are good, but it is perhaps best to keep each separate—i.e., plant each description by itself. In any case they must be kept as much out of the sun as possible until planted, it being a good plan to lay them as prepared in wet moss up to the collar. Plant the large-leaved or stronger-growing varieties 1 foot apart every way, whether the plants are put three or seven in a group, in threes or sevens, the circles being respectively 1 foot, 2 feet, and 3 feet across, and the arrangement equi-distant. The dwarf varieties will be accommodated with a distance of 9 inches between the plants. The ground should be made firm by treading when the weather is dry. Choose moist weather if possible for planting, and put the plant down so as to leave the centre clear of the soil after it is pressed down about the roots as it should be rather firmly, or as firm as the surrounding ground. Water at once, and through a rose, so as to settle the soil about the roots, which should be repeated each evening until the plants become established, to facilitate which a few branches of evergreens or twigs of deciduous trees in leaf stuck in the ground on the sun side, so as to shade the plants, will be well repaid in the after well-doing of the plants. Keep a sharp look out for slugs late in the evening and early morning, after or before rain. Dust the plants with quicklime late in the evening, which will destroy all it falls upon, and repeat as occasion requires. As a preventive a ring of dry soot may be drawn around each plant.

**After Treatment.**—Weeds should be kept under by running a hoe through the soil frequently, indeed they never ought to get beyond the seedling state. When the plants are growing freely dust with dry soot, selecting a time when the plants are damp, as a dewy morning or late evening. By midsummer, or from then to early July, mulch the soil close up to the centre of the plants and outward to quite 9 inches, covering the ground an inch thick with partially decayed manure, as that of a spent Mushroom bed; moss litter, leaf soil, and cocoa-nut fibre refuse are similarly employed. If the ground is dry a thorough soaking of water should be given prior to mulching. In dry weather give a good watering once a week through the mulching. Runners must be removed as they appear, but it is best to leave a joint or two at the base of each runner in preference to cutting them quite close to the plant. Runners that do not make more than a few inches of wire before showing the tufted leaf growth, the nucleus of the runner plant should be retained and an opening made for it in the mulching, in which it should be placed on the soil and be pegged, or a little of the mulching, or a small stone placed on the wire near the runner, which will facilitate the rooting. In autumn remove any decayed leaves, and stir the surface lightly with a small fork, mulch again with partially decayed manure or other available material, and leave the rest to Nature. In applying the mulch care should be taken not to cover the crowns or bury any of the flower buds. During the prevalence of winds with frost in winter and early spring a few Spruce or other branches around and amongst the clumps or on the sides of rows will afford shelter to the flowers and foliage.

**Second Year.**—After flowering thin out the crowns, leaving the most compact and least elongated, pointing the soil about each plant without much disturbance of the roots. Dress with soot during the first moist weather that prevails afterwards, and mulch with short manure, &c., as in the first year, keeping off all the long runners, and not encouraging any that are likely to cause crowding, it being essential that the plants be kept from becoming a closely matted entangled mass of runners and leaves. Weeds must be kept under, and drought avoided by watering in dry weather. A slight mulch in autumn after clearing off any useless old foliage will be of benefit. Plants so treated will afford a quantity of useful flowers, and by similar treatment will continue to afford them for years; but the flowers are never so large as in the first year, and after the second it is preferable to replant; indeed fresh plantings should be made every year, so that there is a succession of different age.

**Varieties for semi-cultivation:**—

**Section I.**—Plant dwarf and close-growing; foliage and flowers small to medium size; flower stems short to medium length. Suitable for button-hole bouquets, knots for dresses, shoulder and hip sprays, and in small bunches for specimen or finger-glasses in boudoirs, house and table decorations:—

*Viola odorata plena*, double, bluish purple. Spring. Syn. Double Scotch.

— *alba plena*, double, white. Spring. Syn. compacta.

— *elegantissima plena*, double, blue, indigo centre, waxy petals, finely imbricated, lovely, small in all its parts. Spring.

— *rubra*, single, pink. Spring.

— *parmaensis*, semi-double, white striped rose. Spring.

— *Patrie*, double, deep purple-violet, streaked red. September to April.

— *suavis* (Russian, Scotch, London, floribunda, &c.), single, blue. Spring.

— *suavis superba* (Russian Superb), larger in all its parts than Russian; flower blue, rosy purple tinted. Spring.

— *suavis alba*, single, white. Spring. Syn. albiflora.

— *suavis purpurea plena*, double, deep purple. Spring. Syn. Double Russian.

— *suavis alba plena*, double, white. Spring. Syn. Double White Russian.

— *suavis King of Violets*, double, indigo blue. Spring.

**Section II.**—Plant medium and compact-growing; foliage medium size; flowers medium to large; flower stems medium to long. Suitable for similar purpose to Section I. on a larger scale:—

*Viola odorata argenteaeflora*, single, white, tinted rosy purple, purple spurs. Spring. If the runners are allowed to remain it flowers most of the year.

— *rubra plena*, double, pink. Spring.

— *suavis La Reine*, double, white tinged purple. Spring.

— *suavis Queen of Violets*, double, tinged purple, flowers occasionally very large. Spring. Syn. Belle de Chatenay. There is a form of this—viz., *cærulea plena*, with double light purple flowers.

— *suavis Devoniensis*, single, purple, sometimes flowers a little in autumn, mostly in spring.

— *suavis Wilsoni*, single purple, white eye, quaint in form, having narrow petals. Spring.

— *suavis Lavisiana*, single, lavender, white eye. Spring.

**Section III.**—Plant strong, foliage large, flowers large, flower stem long. Suitable for large bouquets, vases, &c.:—

*Viola odorata suavis*, Garden vars.:—

*Czar*, single, purple. Autumn, winter, and spring flowering.

*Victoria Regina*, single, purple. Autumn, winter and spring. Raised by Lee.

*Odoratissima*, single, bluish-violet. Spring. Best of the large varieties for outdoors. Raised by Lee.

*White Czar*, single, white. Autumn, winter, and spring.

**Section IV.**—Plant medium; foliage medium large, pointed, and comparatively smooth, shining, light bronzy green; flowers medium to large; flower stems medium to long. More tender than those of the other sections. The most chaste and sweetest of Violets.

*Viola odorata suavis pallida plena*, double, lavender, white eye. Spring. Syn. Neapolitan.

— *pallida alba plena*, double or semi-double, white. Spring. Syn. White Neapolitan, Swanley White, Count Brazzi's White Neapolitan.

— *Marie Louise*, double, lavender blue, white eye. Autumn, winter, and spring.

— *New York*, double, deep mauve, streaked red, white centre. September to April. Syn. *Odorata pendula*, Venice, Marguerite de Savoie, Marie Louise of some, Count Brazzi's Neapolitan.

— *De Parme*, double, deep lavender, white eye. Flowers in autumn, but mainly in spring.

— *Duchess of Edinburgh*, double, cream-white ground, each petal tinted mauve, bordered blue.—**VIOLA.**



THE CHISWICK HORTICULTURAL SOCIETY'S annual Exhibition will take place on Tuesday, July 15th, in the Royal Horticultural Society's Gardens, Chiswick, when prizes will be offered in sixty-four classes, ranging from £5 to 1s., for plants, flowers, fruit, and vegetables. A number of special prizes are contributed by friends of the Society, such as the Duke of Devonshire, Marquis of Bute, Lady George Hamilton, Leopold de Rothschild, Esq., and others. The Hon. Sec. is Mr. J. Fromow, Chiswick.

— MESSRS. ROBERT VEITCH & SON, Exeter, send us some fine flowering branches of *CHOISYA TERNATA* to let us see "how freely it blooms in the open in Devon. The bushes are 4 feet high and 4 to 5 feet through; and after having been in our nursery at Exminster, near Exeter, withstood the severity of the past winter, are now covered with blossom and in rugged health. We do not think its hardiness is sufficiently well known, or it would be oftener met with than it is. Luxuriant growth, handsome foliage, large, Orange-blossom-like flowers, and a delightful perfume place it in the first rank of flowering shrubs." We have seen this handsome shrub out of doors in the neighbourhood of London, but it needs to be grown against a wall, and is then seldom injured by frost.

— "ENTOMOLOGIST" writes—"Recent inquiries about CANKER



incline me to the view that probably the truth lies between the arguers. The insect is not the prime agent, as the disease is internal, but, on the other hand, the Acari by their attacks greatly aggravate the injury, and frustrate Nature's efforts to cure."

— A SAMPLE of CALCEOLARIA BLOOMS from Messrs. Kelway and Son, Langport, Somerset, includes some finely shaped flowers, varied in colour, selfs, spotted, and laced. Some have white or very pale yellow grounds, others gold, and still others crimson. All are pretty, and the strain is a good one.

— MR. J. LESLIE of Perth sends us a small bunch of CHRYSANTHEMUM FAIR MAID OF GUERNSEY, which, as he remarks, "though not large, are very late, and there are more to come." The blooms are very fine, and must be useful at this time of year.

— THE BRENTWOOD HORTICULTURAL SOCIETY will hold a summer Exhibition in Weald Park, near Brentwood, in connection with the Essex Agricultural Society's Show on June 17th and 18th this year. Three hundred prizes are offered in eighty classes, the President's prize for a group of Roses, a silver cup value £5, being one of the principal, but the prizes, six stove and greenhouse plants—namely, £6, £4, and £2, are the most valuable offered. The Secretary is Mr. Thomas Haws.

— MR. F. TAYLOR writes from Welbeck on the WEATHER AND BIRDS:—"There were seventy-six martins and ten swallows picked up dead on the 15th inst. close round the Abbey. They had perished through the cold wet weather, besides an immense number on the grounds and lakes. I have not seen a black martin since. There are a few swallows, brown sand martins, and swifts or devlins, as some call them, left."

— THE seventeenth annual Show of the BAGSHOT AND WINDLESHAM SOCIETY will be held in Bagshot Park on June 29th and 30th, a poultry show and rural *fête* being held at the same time. Fifty-two classes are provided for plants, fruits, flowers, and vegetables, the prizes varying in amount from 30s. to 1s. The Hon. Sec. is Mr. W. H. Babbage, Bagshot.

— MR. HARRISON WEIR has succeeded in raising some distinct and beautiful HYBRID PHYLLOCACTI, and flowers of several forms which he had at South Kensington were very brightly coloured. The majority are rich scarlet, but others are more or less tinged with rose, affording very delicate shades.

— THE recent HEAVY STORMS OF RAIN have caused considerable damage in many low districts, much land being under water, and market gardens in the valley of the Thames have suffered severely. Many crops will be greatly injured, and late-sown seed that has not germinated will probably in numerous cases decay in the ground where it is not washed away. Peas have been much damaged in several private gardens, and other vegetables have had their foliage cut by hailstones. Following such a protracted winter, these storms have rendered farming and market gardening prospects still more gloomy.

— MR. BARR sends us flowers of the POET'S NARCISSUS, showing how greatly they vary in size, form, and colouring of the cup. The variations are certainly considerable, and impart additional interest to this favourite flower.

— REPLYING to a correspondent, Mr. Thomas Meehan, Editor of the "American Gardener's Monthly," recently had a note upon the FERTILISATION OF PLANTS which is worthy of reproduction:—"Whether the pistils mature before the stamens (proterogynous) or the stamens before the pistils (proterandrous) is solely a matter of climate or season, and is not a definite character of the plant itself. This, we think, has been proved by the writer of this in the 'Proceedings of the Academy of Natural Sciences of Philadelphia,' though we do not know that the fact has been recognised by European botanists; certainly by none who have written about the fertilisation of flowers. A stamen is excited to growth by a few warm days, while it takes a regularly warm 'spell' to start the pistil. This is the reason why we often fail in getting crops of Hickories, Walnuts, Filberts, and other things when there are a few warm days in winter. The stamens mature long before the pistils push. Hence when they do there is no pollen to fertilise them. In the usual seasons they both push together, or the flowers may be proterogynous. There is no rule for the influence of either parent. The same plant to-day may show a large proportion

leaning toward the male parent. Seeds of the same cross next year may have opposite results."

— AT a meeting of the Royal Botanic Society of London, held on Saturday, Lord Aveland, Vice-president, in the chair, Dr. Cogswell read a paper upon CAMASSIA ESCULENTA, the Camass of the North American Indians, a Liliaceous plant, whose bulbs were once a staple food of the aborigines of the western slope of the Rocky Mountains, though now it has given place in great measure to the white man's corn and vegetables. The season of flowering was held as a high festival by the tribes that assembled together to dig up the bulbs, the maiden who collected the greatest quantity being estimated the most eligible for matrimony. Specimens of the plant in flower from the Society's garden were shown at the meeting.

— A DAILY contemporary observes that the increase of FRUIT PRODUCTION IN CALIFORNIA is remarkable. Last year over 4500 tons of raisins (nearly three times as much as the previous year's produce), 750 tons of Prunes, 910 tons of Apples, 950 tons of Peaches, 570 tons of Plums, 325 tons of Apricots, 625 tons of Walnuts, and 525 tons of Almonds were produced. The yield of honey was 1250 tons. All these quantities are expected to be largely increased this year. Orange-growing is still on the increase, and 1100 car loads of Oranges had been sent out of San Bernardino and Los Angeles Counties by the 1st of April, when the exporting season was not over. As the exporting of Oranges from Florida finishes by about the time when it begins in California, there is really little or no competition between the two States in this branch of industry."

— A CORRESPONDENT of an American paper discourses on the extraordinary fruitfulness of the Strawberry in Florida. The writer, in the presence of witnesses, counted 138 berries, large and small, on a single plant, grown in the open air, in the first week of April. But what is more remarkable than the fruitfulness of the crop at a given time is the unusually long period during which it continues bearing. Last year growers commenced shipping Strawberries to New York and elsewhere on the 9th of February, and continued sending them till the end of May. As late as the third week of June small quantities were picked for local use. More remarkable still is the fact that this prolonged bearing was all from a single variety.

— WE learn that A. H. Smee, Esq., The Grange, Wallington, will throw his garden open to visitors on Saturday next, the 29th inst., when the usual DISPLAY OF ORCHIDS AND OTHER PLANTS will be provided. At this time of year The Grange garden is in its best condition, and large numbers of visitors avail themselves of Mr. Smee's liberality.

— "WILLESDEN" writes, "Will some of your correspondents give me information as to SCHOOL FLOWER SHOWS? What is the best time to hold them? What kind of flowers ought to be grown? Is it best to furnish the plants to the children, or let them buy them? What are the best means to take to avoid fraud, such as buying plants nearly flowered and exhibiting them as their own? I want rules and any information that can be given."

— ANOTHER large shipment of FRUIT FROM SOUTH AUSTRALIA AND NEW SOUTH WALES has reached the market for colonial produce held in connection with the Colonial and Indian Exhibition. It was brought over per the Orient liner "Cuzco," and proved to be in excellent order. The South Australian consignment consists of a selection of Apples, Pears, Oranges, Grapes, Quinces, Almonds, Raisins, Currants, &c. A case of eleven Pears weighed no less than 31½ lbs., five of them being 16½ lbs. They were shown in the South Australian Court on the occasion of the recent visit of the Queen to the Exhibition, and were much admired by Her Majesty, the Prince of Wales, and Princess Beatrice, to whom a basket of the fruit was presented. The shipment from New South Wales comprises twelve cases of various descriptions of Apples and Grapes from the district of Orange, packed on an improved system, which has resulted in a complete success. The clusters of Grapes were perfect. The fruit was exhibited on Tuesday at the Show of the Royal Horticultural Society, after which it was exposed for sale in the Colonial Market at the Exhibition.

#### SPRING-ROOTED HYDRANGEAS.

"G. G., *Hants*," in his remarks, page 408, says striking cuttings of Hydrangeas in the autumn is often attended by disappointment. I advise "G. G.," or anyone else that has not tried, to take the cuttings during



August, selecting strong shoots, and insert them in small pots singly, place them under a handlight or frame in a close warm house till rooted, then remove them to a shelf near the light for a month or six weeks, after which gradually harden them and reduce the supply of water. When the leaves are off any cool shed or pit is good enough for them until they are required to start again, which may be begun in January by bringing them into a gentle heat, in hatches as required to keep up a succession. As soon as they have started growing shift them into 6-inch pots and place on shelf near the glass in a temperature of about 60°. In potting sink them well in the soil up to the first young leaves. Remove suckers or side shoots if any form, and in a short time you will have handsome plants little more than a foot high, with single trusses 18 inches across or more if the best cultural attention is accorded.—FREDK. TAYLOR, *The Shrubbery, Welbeck, Worksop, Notts.*

### CHRYSANTHEMUMS—EARLY BUDS.

I WOULD like to ask Mr. Molyneux's advice on a few matters connected with Chrysanthemums, first thanking him, however, for the clear manner in which he is detailing his practice. This is a great boon to many Chrysanthemum growers, and I am following his precepts as closely as I can. I followed him and others very successfully at the shows last year, and hope this year to reduce the distance between us. I hope he will not see a "red light" in that.

My plants now are good, averaging about 16 inches high, and well established in 6-inch pots. Some few of them formed buds a fortnight ago, and others are setting now, chiefly Japanese. I now want to know what is best to do with them. I calculate they will set again in July and early August, but I may be wrong. Would it be best to stop them, say late in May and early in June, according to the variety, whether it is a late or early one, or run them up to the next bud? I think topping weakens a plant, or I should say the break or shoot from a topped plant is not so strong as the shoot from a natural break.

On looking through the plants to-day, May 11th, I find there are more buds formed than I thought or wished. They have been grown quite hard, have never had fire heat. Leaves are large, wood firm, short-jointed, and feathered with leaves to the soil. Everything is right but this bud, which is coming a month earlier than I wished.—CHRYSANTHEMUM.

[I am pleased to find my notes on Chrysanthemums in the Journal have proved useful, but I cannot help thinking that "Chrysanthemum" has not read them so carefully as he ought, or he would not find himself in such a dilemma as he now appears to be in with his plants. However, my wish is to detail my practice as plainly as I can, and I have much pleasure in trying to release your correspondent from his troubles. If he will turn to page 167 he will find what he requires—viz., commencing with the following: "As a general system it is best to allow varieties to assume their natural habits; the growth is then solidified, and all the wants met at the proper time. The plants are not topped at all, but allowed a free uninterrupted growth until the first natural break, which sometimes occurs about the middle of May or early in June, according to the time the cuttings were struck, early or late. When it does occur, the bloom bud must be rubbed out and three of the strongest shoots selected." "Chrysanthemum's" plants appear to have formed the flower bud exactly at the time I indicated. Plants differ in various localities as to the time they show successional buds, and according to the treatment they receive. I advise your correspondent not to top his plants at all, but take out the flower buds as they form, and retain the three shoots as selected at the first break, and continue this system of treatment until the buds are "taken," which are to be retained for the production of the blooms. As to "lights" "red," or otherwise, they cannot be properly seen till turned on by the judges.—E. MOLYNEUX.]

### CRYSTAL PALACE SUMMER SHOW.

AN extensive, varied, and handsome Show was held in the Sydenham Palace on Friday and Saturday last, well maintaining the reputation of the establishment for meritorious displays. A different method of arranging the exhibits was adopted on this occasion, and proved advantageous in several ways. It has been usual before to have the greater portion of the plants together in the transept and one of the naves, but on Friday both naves and the transept were devoted to them, the result being that although the general effect was less imposing the interest was spread over a larger space, and the visitors were enabled to inspect the exhibits without being inconveniently crowded, as was often the case under the old system. There was, however, sufficient concentration of plants and classes in the transept to constitute an effective display alone, the groups of Calceolarias, Pelargoniums, and Roses being arranged on tables, and having a very bright appearance. Orchids were well represented; stove and greenhouse plants, Ferns, fine-foliage plants, and miscellaneous groups also contributed largely to the beauty of the Show. These were all arranged to the best advantage by Mr. W. G. Head, the Superintendent, and the sloping stages permitted the competitors to dispose their plants satisfactorily in hanks; but it seemed somewhat too steep, and in a few cases a difficulty was experienced in placing the plants securely. This might be easily remedied by making the stages in short steps, and the plants could then be tilted at pleasure by means of wooden blocks. Stove and greenhouse plants were not quite so numerous as at summer shows usually, and in several instances the specimens were what are termed "one-sided," and though these were in healthy floriferous condition they did not look so well in small groups in the centre of the nave as they do in larger groups at places like the Regent's Park Botanic Gardens, where their defects are to a great extent concealed.

ORCHIDS.—Liberal provision was made for these plants, and the amateurs responded to the invitations freely. An open class was devoted to nine Orchids, Mr. A. G. Catt, gardener to W. Cobb, Esq., Silverdale Lodge, Sydenham, securing the premier award with specimens of medium size, but in excellent health and well flowered. Those shown were *Cattleya Mossiae*, C. Skinneri with ten racemes of bright flowers; *Lælia purpurata*, eight racemes; *Dendrobium thyrsiflorum*, with twelve long racemes; *Cypripedium Lawrencianum*, twenty flowers; *Odontoglossum citrosium*, five panicles; *Odontoglossum vexillarium*, very handsome, with twelve racemes of five and six highly coloured flowers each; *O. Alexandræ*, four racemes, a good variety, and *Dendrobium Bensoniæ* flowering profusely. Mr. H. James, Castle Nursery, Lower Norwood, was second, showing several specimens similar to those he had at the Regent's Park Show two days before, the best being *Lælia purpurata*, eighteen flowers, a beautiful variety; *Dendrobium Jamesianum*, twenty-four large blooms; *Cattleya Mendeli*, twenty-two flowers; and *Vanda tricolor formosa*, five racemes. The third place was accorded to Mr. F. J. Hill, gardener to H. Little, Esq., The Barons, Twickenham, whose *Cattleya Skinneri*, *Aerides Fieldingi*, and *Lycaste Skinneri* were the most notable. A class for six exotic Orchids was also provided for amateurs, in which Mr. A. G. Catt was again the most successful competitor, but amongst the orchidist visitors there was some difference of opinion respecting the merits of the three collections entered. The first-prize plants comprised *Dendrobium thyrsiflorum*, two long racemes; *Lælia purpurata*, eight flowers; *Phalænopsis grandiflora*, a handsome well grown plant with one raceme of flowers; *Cattleya Mendeli*, apparently a made-up plant, *Oncidium concolor*, and *Odontoglossum citrosium* being healthy samples. Mr. H. Luff, gardener to R. R. Hyatt, Esq., Hetherston, Leigham Court, Streatham, secured the second place with very neat and fresh specimens, not so large as the preceding but genuine plants; *Lycaste Skinneri* with twenty fine flowers, a very handsome plant, *Cypripedium villosum*, about thirty flowers; *Masdevallia Harryana*, sixteen flowers; *M. Lindenii*, forty flowers; *Phalænopsis amabilis* and *Cattleya Mendeli*. These were the most meritorious of all in freshness. Mr. C. J. Salter, gardener to J. Southgate, Esq., Selborne, took the third prize with excellent plants of *Cypripedium Lawrencianum*, thirty-six flowers; *Dendrobium nobile*, *Masdevallia Veitchii majus*, a very fine variety, *Odontoglossum polyanthum*, *Odontoglossum vexillarium* with fourteen racemes, and *Dendrobium thyrsiflorum* with nine large racemes, but this plant rather damaged what was otherwise a good collection, as the foliage was somewhat discoloured. In the class for a group of not less than forty Orchids Mr. C. J. Salter was, however, victorious, gaining the principal prize with a choice and pretty collection of medium size but well grown plants, representing a large number of species and varieties. They were also very tastefully arranged with Palms and Ferns, forming a graceful combination of flowers and foliage. Some of the more notable plants were *Odontoglossum vexillarium*, *O. citrosium*, *O. Cervantesi*, *O. nebulosum*, *O. crispum*, *Dendrobium Devonianum*, *D. Falconeri*, and *Masdevallia ignea* and *Chimæra*. Mr. James followed, his plants being rather larger with more *Cattleyas*, but there was not quite so much diversity in the group generally. Mr. Luff was third, *Odontoglossum vexillarium*, *Phalænopsis Luddemania*, *Masdevallia Shuttleworthii*, and *Dendrobium Falconeri* being well represented amongst many others. These exhibits together rendered the department for Orchids one of the chief features of the Show, and we do not remember seeing these plants so well represented at the Crystal Palace before.

STOVE AND GREENHOUSE PLANTS.—For single specimens Mr. C. J. Salter and Mr. E. Chadwick, gardener to A. M. Nelson, Esq., Hanger Hill House, were awarded equal second prizes for *Vanda suavis* and *Oncidium sphacelatum* respectively, the former a large plant with two racemes of flowers, and the other with six panicles. There were sufficient of these to add considerably both to the extent and beauty of the Show, although the competition was not quite so keen as at some previous shows. In the open class for nine specimens Mr. H. James was the most successful, having evenly trained examples of *Bougainvillea glabra*, globular and freely flowered; *Azalea Souvenir de Pays Bas*, freely flowered; *Erica Lindleyana*, 5 feet in diameter; *Aphelexis macrantha purpurea*, very bright; *Erica ventricosa coccinea*, *Anthurium Schertzerianum*, *Stephanotis floribunda*, *Erica Cavendishiana*, and *Darwinia Hookeri*. Mr. W. Chapman, gardener to J. Spode, Esq., Hawkesyard, Rugeley, was second with large, fresh, and healthy plants, but in several cases rather "one-sided," and not such even all-round specimens as might be desired for exhibition purposes, though useful for grouping in a house or elsewhere. Mr. Mould, Pewsey, took the third place for smaller plants, one of the best being *Boronia elatior*, capitally flowered. The best amateurs' six stove and greenhouse plants were from Mr. Chapman, and comprised *Tremandra ericæfolia*, *Ixora coccinea*, *Hedera noliifera*, *Ixora Williamsi*, *Erica profusa*, and *Anthurium Schertzerianum*, all flowering freely. Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, and Mr. J. Bolton, gardener to W. H. Spottiswoode, Esq., Combe Bank, Sevenoaks, followed in the order named, the former *Azalea Leopold I.*, *Erica depressa* and *Tetratheca ericæfolia*, very fine, and the latter exhibiting *Clerodendron fallax* and *Statice profusa* in first-rate condition. Mr. H. James took the lead with a single specimen greenhouse plant, staging *Erica Cavendishiana*, 6 feet high, as much in diameter, very healthy, but not bearing a great number of flowers. Mr. S. Reece, gardener to R. Whyte, Esq., Pentland House, Old Road, Lee, was second with *Genetyllis tulipifera*, 4 feet in diameter, globular in form, healthy, and well flowered. Mr. W. Chapman was third, showing *Aphelexis grandiflora*, 3 feet in diameter, and flowering most profusely. The best single specimen stove plant was *Ixora Dixiana*, flowering freely; Mr. James was second with *Anthurium Schertzerianum*; and Mr. W. King, gardener to Philip Crawley, Esq., Waddon House, Croydon, was third with *Clerodendron Balfourianum*, of good size and in satisfactory condition.

The Azaleas from Mr. C. Turner, Slough, who was first in both classes for eighteen and nine plants. Most of the plants in the "eighteen" class were neat specimens, about 3 feet in diameter and most profusely flowered, the varieties bright and attractive. The most notable varieties were Mrs. Turner, soft pink and white; *Roi d'Hollande*, bright red, very effective; *Cordon Bleu*, warm purplish crimson; *Comte de Chambord*, blush and white, with a red blotch; *Madame Marie Lefebvre*, white, large, all these being single varieties, and *Duke of Edinburgh*, bright red, a double form of



great beauty. The larger specimens, which were 5 feet high, included Cheloni, Reine des Fleurs, Duc de Nassau, Stella, A. Borsig, Comtesse de Flandres, and Etendard de Flandres.

Roses, Calceolarias, and Pelargoniums, as already noted, formed imposing groups. The Roses from Messrs. Paul & Son, Cheshunt, Mr. C. Turner, and Mr. W. Rumsey were very handsome, and to these must be added the grand bank of plants, cut blooms, shown by Messrs. W. Paul and Son, Waltham Cross, but not in competition. The Calceolarias shown by Mr. J. James were dwarf handsome plants with large and brightly coloured flowers, Mr. C. J. Salter following with good plants bearing bright and diversely coloured flowers. Mr. C. Turner was the principal exhibitor of Pelargoniums; Mr. F. J. Hill and Mr. D. Phillips most of the other prizes in the open and amateurs' classes.

The leading exhibitor of fine-foliage plants and Ferns was Mr. C. Rann, who had some of the magnificent specimens that we have frequently had occasion to praise. His premier nine specimens included *Cycas revoluta*, *Croton interruptus*, *Dasylicion acrotrichum*, *Anthurium crystallinum*, and *Bonapartea stricta*, which formed a grand bank in the transept near the large stage. Mr. J. N. Penfold and Mr. H. James followed with smaller examples. Mr. Rann's Ferns were also good plants. Crotons and Dracenas were numerous represented, but the former were somewhat deficient in colour. Mr. J. R. Bird and Mr. W. King won the chief prizes with vigorous plants. Mr. H. James had collections of *Sarracenia* and *Nepenthes*, for which first prizes were awarded. Messrs. Hooper & Co., Covent Garden, were awarded the premier prize for eighteen table plants, very neat examples of Palms, Dracenas, and other plants suitable for the purpose. Messrs. Laing & Co. were first with nine *Caladiums*, large well grown plants, such as are seldom seen at exhibitions.

Messrs. J. Laing & Co., Forest Hill, had a large and handsome group of miscellaneous plants, for which the first prize was awarded. It was one of the most tasteful and effective they have exhibited for some time, and excited the admiration of all visitors who saw it. A number of choice new Tuberous Begonias was included, together with many Orchids, Palms, Ferns, *Caladiums*, and innumerable other plants, amongst which were several novelties that were certificated. Messrs. Hooper & Co. were placed second with a group of *Petunias*, *Gloxinias*, *Azaleas*, and fine-foliage plants. For stands of flowers Mr. J. R. Chard, Clapham Common, was first in all classes with his usual tasteful arrangements. For collections of cut flowers Mr. A. Gibson, gardener to T. F. Burnaby Atkins, Esq., Halstead Place, Sevenoaks, and Mr. C. J. Salter were awarded the leading prizes, both showing well.

The miscellaneous non-competing exhibits comprised groups of Tree *Pæonies* from Messrs. J. Laing & Co., Roses from Messrs. W. Paul & Son and Mr. W. Rumsey, *Pelargoniums* from Mr. J. Wiggins, Crotons and *Mignonette* from J. A. Causton, Esq., West Dulwich; collections of Apples and hardy plants from Messrs. J. Cheal & Sons, Crawley, and floral designs from Mr. J. R. Chard and Mr. R. End. For all of the preceding extra prizes were awarded. Certificates were awarded for the following plants:—

*Pæonia Moutan odorata Marie* (J. Laing & Co.).—A large full-flowered variety of a delicate pale purple hue, and *lactea*, white, flower of great size and substance.

*Tuberous Begonia Marquis of Stafford* (J. Laing & Co.).—A handsome double, rich bright scarlet, the flower neatly formed.

*Tuberous Begonia Charmer* (J. Laing & Co.).—Single, large beautifully formed rounded petals, white centre, with a deep rose margin.

*Caladium Comte de Germiny* (J. Laing & Co.).—A pretty variety with neat leaves, red with light spots, and *Raymond Lemonier*, red centre with pale yellow margin.

*Pelargonium Delight* (J. Wiggins).—A show decorative variety, white, with a crimson spot in each petal. Very attractive.

### MIGNONETTE IN POTS.

LARGE plants are not so commonly grown nowadays as was wont to be the case in years not so long past, for the simple and sufficient reason that small plants are much more useful. However, there are cases in which large plants are of greater service than small ones, and I am inclined to think that *Mignonette* for supplying flowers during early spring on till summer is one such case. This plant thrives on repression. Every flower spray removed is followed by three or more to take its place, so that literally the more flowers cut from a strong healthy plant of *Mignonette* the more flowers there are to cut.

A large plant well furnished with growth requires some time to lay a foundation to work on. Some growers allow a longer period than others, and I have no doubt that numbers will have not only sown the seed for next year's plants, but will have these plants in various stages of growth. For my part I own to a repugnance to nursing hardy flowers under glass at an early stage of their existence, though there are of course instances in which it is necessary; but for one case in which a necessity can be admitted there are numbers in which no such necessity exists, and I have to submit that the case of raising *Mignonette* in early spring belongs to the latter category. Seeds sown in May germinate strongly, and, other things being equal, plants from such seed will ultimately overtake those from seed sown earlier and grown on under glass for a time.

The cultural details of *Mignonette*-growing is simple enough, and it will not be necessary to enlarge on them at any length. The seeds are sown in thumb-pots, three seeds in each, the plants from which are reduced to one. The compost used for the seedling pots is one of equal parts loam, Mushroom bed refuse, and sand. The pots are shaded from sun until the seedlings are up, and even afterwards until the plants have been shifted, the one thing which is to be most guarded against in the case of this flower being dryness of root, and in the case of very small pots it is safer to err by keeping the sun off them altogether than to risk any likelihood of the young plants being subjected to a drying. Very good plants can be formed and flowered in 10-inch pots, and the summer treatment of the plants consists in shifting on into large pots

until the above size is reached, and in pinching out any flowers which may appear. The shifts may be from the seed pots in those 4 inches across, next into those of 7 inches diameter, and then into the largest pot. In shifting none of the drainage should be removed from the hall, as so many roots cling thereto as to cause its removal and act prejudicially on the health of the plant. The material we use for potting is composed of three parts loam to one of rough Mushroom bed refuse. A layer of the latter is also placed over the drainage, and in potting the soil is kept rather loose than firm. Occasional surface dressing of a good artificial manure is of much benefit throughout the summer months, the only time when they must be left off being during the time subsequent to repotting, when fresh roots have not had time to push into the fresh soil. During the winter months when growth is merely kept going very little manure must be employed, but immediately the days begin to lengthen the plants may be hastened into bloom, and manure every ten days will then be of very great advantage.

There are various methods of training, but I do not think any is better than the bush form. Plants trained in this way can be cut on occasion very hard indeed without damaging their appearance to any great extent, and it has the further advantage that once the foundation of the bush has been formed the after training does not call for so much attention as some other methods. I may refer to one little habit of this plant, which in the hands of the less experienced causes a good deal of annoyance throughout the summer months, and that is the difficulty of keeping the plants from going altogether to flower. It is a continual pinching of flower tips all along, and after the portion covered with flower has been removed very little fresh growth extension is left behind. The only escape out of this difficulty is to keep up a vigorous root-action, such as under ordinary care would be secured by carrying out the details noted above, when there will be less tendency to flower displayed by the growths, and strong healthy shoots with ample foliage will follow. As to the best variety to grow, my experience would point to selecting a good type plant, and saving seed therefrom. At present I am saving seed from a market-grown plant, the stock in the hands of market florists being very good.

It is possible to secure a grand supply of flowers by sowing seeds in a heated low frame about the new year. A very rich bed of soil is made up, the seed sown thinly. The plants, which appear about the middle of January, can be pushed on at a moderate rate, and by the latter part of March begin to furnish a supply of flowers which never fails so long as they are removed as they become ready, and occasional dressings of manure given, nitrate of soda causing a very luxuriant growth.—B.

### ALPINE AURICULAS.

It is not my intention to speak of the florists' varieties of Alpine Auriculas, as I am not sure they would succeed under the treatment I am about to recommend; at any rate they are generally speaking much more carefully treated, but many people cannot find the time and convenience which the florist requires, and yet they might have a display of flowers which would compare very favourably with the others if not minutely inspected.

I was forcibly reminded a few days since when looking round Burghley Gardens, how easy it is to get a good display of these Auriculas if they are only planted in a favourable position; two rows of them on a north border were worth seeing, and yet they have received no special attention. If memory serves me rightly the seed was sown in 1880; the seedlings were planted when large enough in their present position, which is a north border shaded from sun by trees; soil a rich deep sandy loam, and beyond keeping them clear of weeds and rubbish they have received no attention since that time. They are now huge plants carrying fine trusses of flowers, and almost everyone would be glad to have a similar display of flowers so varied in colour and sweet-scented. The seed is best sown as soon as ripe in a pan, and placed under a handglass where the sun never shines, or, failing such a position, in the coolest place obtainable. Shade them and keep the soil well watered until the seedlings are up, when they should have as much light as possible without bright sunshine, and a little air. As soon as they are half an inch high they should be pricked out into other pans, and are best if kept in a cold pit through the first winter in order to be safe from slugs, otherwise they are quite hardy and may be pricked out in a cool shady position if slugs can be guarded against.

A few of the plants will flower the first spring, but the majority will require another season's growth. They should be planted in their permanent quarters when about twelve months old, and afterwards, if kept clear of weeds, will take care of themselves for several years. Those at Burghley were certainly the finest I have ever seen. It is not in everyone's power to find them a position where the sun never shines upon them, but much may be done by shading them when in flower if they are in a warm position, and watering and mulching in summer. Several years since I saw some very good plants grown in that way in a dry and warm position. They like a deep rich soil, and will repay for any extra attention.—W. H. DIVERS, *Ketton Hall*.

### DENDROBIUM FIMBRIATUM OCULATUM (PAXTONI.)

ONE of the most handsome of the racemose *Dendrobiums* is *D. fimbriatum oculatum*, or *D. Paxtoni* as it is very generally called in gardens, and with good treatment it develops into a particularly fine specimen, the long pendulous racemes drooping gracefully round the plant. The colour of the flowers is a rich golden orange with a crimson maroon blotch, the



racemes being somewhat lax and the flowers distantly placed upon them compared with such well-known *Dendrobiums* as *densiflorum* and *thyrsoflorum*. There has been some confusion respecting the so-called *D. Paxtoni*, a name which has been applied to two distinct plants, and is now not accepted for either. *D. Paxtoni*, as described and figured in "Lindley's Botanical Register," t., 1299, is really *D. chrysanthum*, and is easily recognised by the flowers being borne two or three together instead of in racemes as in the *D. Paxtoni* of gardens. The latter is figured in "Paxton's Magazine of Botany," vol. 6, t. 169, under that name, and in Paxton's "Flower Garden," vol. 3, t. 84, under its true name

whole collection is in most satisfactory condition. All the *Dendrobiums* are placed in the warmest house when making their growths, and are freely supplied with water at the roots. When at rest they are kept cool and quite dry, and it does not matter if they shrivel a little at that time. As soon as the flower spikes begin to push out from the pseudo-bulbs water is again applied freely. It may be added that the *Dendrobium* specially referred to is growing in a pot 8 inches in diameter, and very rarely is so fine a plant seen in a pot that size—the best proof that the culture is exactly what the plant requires.

There are several other fine specimens in the Great Gearies collection,



Fig. 76.—*DENDROBIUM FIMBRIATUM OCULATUM*.

*D. fimbriatum oculatum*. The former of these two is said to have been found by Mr. Gibson, "growing on trees at Pondooah at the base of the Khoseea Hills." It was introduced to the Chatsworth collection in 1837, and flowered in June, 1838.

The illustration (fig. 76) was prepared from a drawing of a very handsome specimen grown by Mr. J. Douglas, gardener to F. Whitbourn, Esq., Great Gearies, Ilford, which is one of the finest we have seen for some time. The plant in question had forty-nine racemes of flowers expanded at the time the drawing was taken, and its beauty can be readily imagined. Mr. Douglas knows full well how to grow Orchids, and the

which we may have occasion to refer to, for some have already made a mark at the leading exhibitions.

#### ROYAL HORTICULTURAL SOCIETY.

MAY 25TH.

THE first of the series of Shows announced for the present season by the above Society was held on Tuesday last in the conservatory, South Kensington. Roses were capitally represented together with Orchids, Azaleas, and Pelargoniums. The collections of hardy flowers also furnished substantial and handsome groups, to which much space was devoted. Stages in the centre of the conservatory extending the whole length were occupied with the principal competing exhibits, the hardy flowers, Cucumbers, Melons, and



Australian Apples being arranged on the side tables. Amongst the hardy flowers the Tree Pæonies were the leading attraction, Mr. Ware having a large collection of varieties of many bright and delicate shades of colour.

**ROSES.**—Substantial prizes of £8, £5, and £3 were offered in the class for twelve Roses, not less than ten varieties, in pots not exceeding 9 inches in diameter. Messrs. Paul & Son, Cheshunt, were awarded the first prize with dwarf compact plants of medium size, about 3 feet in diameter and flowering freely. The chief varieties were White Baroness, Edouard Morren, Madame Lacharme, Merveille de Lyon, Etoile de Lyon, and Lord Frederick Cavendish, very bright and fresh. The second prize was awarded to Mr. C. Turner, Slough, for slightly smaller plants but very healthy; Camille Bernardin, Beauty of Waltham, Innocente Pirola, and Comtesse de Serenye were especially notable. Mr. William Rumsey, Waltham Cross, was third with still smaller plants.

**ORCHIDS.**—Two classes were devoted to Orchids, both for nine distinct plants from amateurs and nurserymen respectively, the prizes being the same in each case—namely, £5, £3, and £2. In the amateurs' class, Mr. Hill, gardener to H. Little, Esq., The Barons, Twickenham, was first, showing Cattleya Skinneri, with twenty flowers, Dendrobium thyrsiflorum, with two dozen racemes; Dendrobium densiflorum, five racemes; D. Dalhousianum, seven racemes; Aerides Fieldingi, Cattleya Mendeli, Lælia purpurata, and Cattleya Mossiae varieties. Mr. A. Luff, gardener to R. R. Hyatt, Esq., Hetherst, Leigham Court Road, Streatham, was second with similar plants to those he showed at the Crystal Palace. In the nurserymen's class, Mr. H. James, Lower Norwood, was the only exhibitor, taking the first prize. His Cypripedium Lawrencianum with thirteen flowers, Cattleya Mendeli with over twenty, and Dendrobium Jamesianum were the best plants.

**AZALEAS.**—This is just the best time for Azaleas, and though the number of exhibitors is not very great, a few contributions add wonderfully to the brightness of a show. The classes provided were for twelve Azaleas not less than ten varieties, and for six Azaleas from amateurs, the pots in both classes not to exceed 9 inches in diameter, but the amateurs were unrepresented, Mr. C. Turner gaining the premier prize for twelve Azaleas with his dwarf, globular, fresh, handsome plants of the most effective varieties. Roi d'Hollande, Cordon Bleu, Mrs. Turner, Bernhard Andreas alba, Mdlle. Marie Lefebvre, and grandis were the most effective.

**PELARGONIUMS.**—Mr. C. Turner was the premier exhibitor in the class for eighteen Pelargoniums of any variety in 8-inch pots. Many of the plants were over 4 feet in diameter and grandly flowered. The best varieties were Kingston Beauty, Emperor of Russia, Prince Leopold, Rosetta, Mons. Desmoulins, Duchess of Bedford, Madame Thibaut, Rosy Morn, Comtesse de Choiseul, Gold Mine, and Maid of Honour. Mr. H. Little was placed second with much smaller plants, but well grown and flowering profusely, especially the free Duchess of Edinburgh and Duchess of Bedford; other good varieties were Pink Perfection, G. Sheppard, Mauve Queen, E. J. Perkins, and Lady Isabel.

**CARNATIONS AND CALCEOLARIAS.**—Only one collection of Carnations was staged, Mr. C. Turner securing the first prize with strong plants, including a large number of seedlings. The bright yellow Pride of Penshurst and the rich scarlet Rufus were also handsome. The only collection was from Mr. A. Luff, who was awarded the second prize, the plants of medium size, but bearing good flowers of varied colours.

**MISCELLANEOUS.**—The Roses from Messrs. W. Paul & Son, Waltham Cross, formed an important exhibit. A dozen boxes of fresh and beautiful cut blooms were staged, and a large bank of plants similar to those which were so much admired at the previous meeting (silver Banksian medal). A large group of Roses in pots was also contributed by Messrs. Paul and Son, Cheshunt, and comprised good specimens of Centifolia rosea, John Stuart Mill, La France, and Comtesse de Serenye, with many other smaller plants (silver Banksian medal). Messrs. H. Lane & Son, Berkhamsted, showed groups of Azaleas and Rhododendrons of many varieties and profusely flowered (silver Banksian medal).

Mr. T. S. Ware, Tottenham, had an extremely effective and handsome group of choice hardy flowers, including an extensive collection of Tree Pæonies in many varieties, with Irises, Tulips, the pretty white Ranunculus acrifolius fl. pl., Gentians, Phloxes, Dodecatheons, Trollius, the beautiful Polemonium Richardsoni, and many other choice plants (silver gilt medal). Messrs. Barr & Son had an extensive group of hardy flowers, Irises, Scilla nutans in variety, Pæonies, and Narcissi being largely shown (silver Banksian medal).

Mr. Cummins, gardener to A. H. Smea, Esq., The Grange, Wallington, was awarded a bronze Banksian medal for a group of Cattleyas, representing a number of varieties of C. Mossiae, some fine forms of Odontoglossum Alexandræ, Masdevallia Shuttleworthii freely flowered, a good variety of Masdevallia amabilis, and several other choice plants. Mr. J. James, Farnham Royal, exhibited a group of dwarf handsome Calceolarias of his superb strain (bronze Banksian medal). Mr. W. Rumsey, Waltham Cross, was awarded a bronze Banksian medal for eight boxes of cut Roses, representing many varieties. A bronze Banksian medal was also awarded to Messrs. Green & Nephew, 107, Queen Victoria Street, for their elegant flower glasses and vases.

**SPECIAL PRIZES.**—Messrs. Sutton & Son, Reading, offered three prizes for the best brace of either Purley Park Hero or Improved Telegraph Cucumbers, which were won by Mr. T. Lockie, gardener to the Hon. G. O. Fitzgerald, Oakley Court, Windsor; Mr. W. Robins, gardener to E. D. Lee, Esq., Hartwell House, Aylesbury; and Mr. J. Neighbour, Bickley Park Gardens, the six competitors showing fruits of nearly equal merit. They also offered the same number of prizes for the best brace of Melons, either Imperial Green Flesh, Scarlet Invincible, or Hero of Lockinge, each entry to consist of one variety. First Mr. Lockie with Hero of Lockinge, of medium size and well netted; second Mr. H. W. Ward, gardener to the Earl of Radnor, Longford Castle, Salisbury; and third Mr. G. Malcolm, Willington Hall, Tarporley, Cheshire, with the same variety. There were four competitors.

Messrs. James Carter & Co., High Holborn, contributed three prizes, "open to noblemen's and gentlemen's gardeners and amateurs only," for the best brace of Carter's Model Cucumber. The prizes were won by Mr. T. Lockie, gardener to the Hon. G. O. Fitzgerald, Oakley Court, Windsor; Mr. C. J. Waite, gardener to Col. the Hon. W. P. Talbot, Glenhurst, Esher;

and Mr. J. Neighbour, Bickley Park Gardens, Kent. There were seven competitors, all showing good even samples.

**FRUIT COMMITTEE.**—Present—T. Francis Rivers, Esq., in the chair, and Messrs. John E. Lane, Harry J. Veitch, G. T. Miles, W. Denning, T. J. Saltmarsh, John Woodbridge, William Warren, John Burnett, T. B. Maywood, Philip Crowley, Harrison Weir, R. D. Blackmore, G. Bunyard, Arthur W. Sutton.

The principal exhibits before this Committee were the Apples and Pears from Australia, which are mentioned in another column. The South Australian Commissioners showed some Oranges and some large handsome solid Pears, which were highly commended, the weight of three fruits being respectively 2 lbs. 12 ozs., 2 lbs. 14 ozs., and 2 lbs. 15½ ozs. each. Mr. J. F. Pascoe, South Australia, showed Apples Dumelow's Seedling and Garibaldi, a vote of thanks being accorded for the latter. Mr. R. Davenport, South Australia, exhibited excellent specimens of Apples Stone's Pippin, Pomeroy, French Crab, and Pear Napoleon, with a dish of Medlars, the Apples being highly commended, and a vote of thanks accorded for them. Mr. S. A. Bucholz, New South Wales, sent hunches of Grapes Black Prince and Black Sherry, of good size and in excellent condition; also three varieties of Apples, which were highly commended. The Committee also expressed their opinion that the Grapes named were excellent in quality and condition, particularly the so-called Black Sherry, respecting which they desired further information as to its origin. Messrs. Eyles, Bros., New South Wales, contributed twelve varieties of Apples that were highly commended, especially Nonpareil and Reinette de Canada. The Committee recommended that a Knightian medal be placed at the disposal of Sir Alexander Stuart for the above and other collections.

The other exhibits were not numerous, but Mr. C. Herrin, Chalfont Park Gardens, Gerrard's Cross, was awarded a cultural commendation for a collection of handsome Citrons, the fruits 5 and 6 inches in diameter. Mr. T. Lockie showed fruits of a seedling Melon from a cross between Hero of Lockinge and Sutton's Invincible, which was passed. Mr. W. Chettleburgh, Worstead House Gardens, Norwich, showed solid examples of Carter's Golden Tripoli Onions. Messrs. J. Veitch & Sons, Chelsea, had fruits of Bismarck and Sandringham Apples to show how well they keep, and W. W. F. Huncie Dick, Esq., Thames Ditton House, Thames Ditton (gardener, Mr. W. Palmer) had two braces of Melons, High Cross Hybrid and Scarlet Premier, apparently good fruits, but it was stipulated that they should not be cut.

**FLORAL COMMITTEE.**—Present, James O'Brien, Esq., in the chair, and Messrs. Shirley Hibberd, Richard Dean, George Paul, J. Dominy, H. M. Pollett, H. F. Lendy, Jas. Douglas, E. Hill, H. Bennett, W. Bealhy, W. Wilks, Amos Perry, H. Ballantine, James Hudson, James Walker, H. Herbst, H. Cannell, W. B. Kellock, William Holmes, H. Turner, and Thos. Baines. Mr. C. Turner, Slough, had a collection of new and choice Pelargoniums, show varieties, the most attractive being Margaret, crimson, white lower petals; The Czar, scarlet and maroon; Magnate, deep maroon and pink, with a white centre; Mandarin, brilliant scarlet; and Outlaw, rosy salmon and maroon. Mr. Wiggins showed a group of Pelargoniums, similar to those he had at the Crystal Palace. Messrs. Hayes, Edmonton, exhibited some new show decorative Pelargoniums; Princess Maude pink and white, and Albert Victor rosy pink edged with white, were the two principal varieties. Mr. B. S. Williams, Upper Holloway, exhibited a group of new plants, several of which were certificated; others not so honoured were Oncidium tetracopis with very long panicles and brownish flowers, the petals yellow, spotted brown, something like O. macranthum in habit. Lælia Russelliana, with white sepals and petals, and a pale purple lip, and L. purpurata Regina with a deep crimson purple lip, and pale purple sepals and petals, were the most notable. Major Lendy, Sunbury (gardener, Mr. West) was awarded a cultural commendation for Saccoladium curvifolium with sixteen spikes of orange red flowers, and a number of spikes of Lælia purpurata, Mr. A. Luff had a curious variety of Cattleya Mossiae named marmorata, spotted and streaked with crimson and white. A vote of thanks was accorded to Messrs. Laing and Co., Forest Hill, for Dendrobium Devonianum with two long growths crowded with flowers. H. Little, Esq., showed a plant of Cattleya Trianae Littleana with white flowers, the lip golden yellow in the throat. Also a pretty variety of Cattleya Mendeli named Masterpiece, the flowers large, nearly white, with a blotch of crimson on the lip. Messrs. Hooper and Co., Covent Garden, showed a good double pink Petunia named Empress, very free and bright. Messrs. J. Carter & Co., High Holborn, had a group of plants of their Queen's Prize Mimulus, the flowers of considerable size and richly coloured, crimson, rich scarlet, orange and yellow spotted. Messrs. E. H. Krelage & Son, Haarlem, were awarded a vote of thanks for a collection of cut flowers of Tulips varied in colour and markings.

#### CERTIFICATED PLANTS.

*Cattleya Mendeli Duke of Marlborough* (F. Sander & Co.).—A magnificent variety with large flowers, the petals about 3 inches broad faintly tinted with purple, the lip over 2½ inches across, gold veined in the throat, the apical half intensely rich crimson, running round the margin and undulated at the tip.

*Odontoglossum vexillarium Sunrise* (H. M. Pollett, Esq.).—A pretty variety, the flowers flushed with crimson, and the sepals and petals tipped with white.

*Houlletia odoratissima antioquiensis* (B. S. Williams).—A curious Orchid, with a scape of five flowers, the sepals and petals reddish brown, the lip white, contracted in the middle with two curved brown horns at the base.

*Amaryllis Her Majesty* (B. S. Williams).—A remarkable variety of the A. reticulata type, the flowers of good shape, and deep crimson right up to the centre.

*Gloxinia Miss Cannell* (H. Cannell & Sons).—An erect-flowered variety, with large hlooms, white, with a ring of bright purple at the top of the tube.

*Pelargonium purpurea* (C. Turner).—A free and handsome variety of Mr. Foster's raising. The flowers large, deep crimson, white centre, and the lower petals bright pink.

*Pæonia Moutan Madame Laffay* (T. S. Ware).—An immense flower, 9 inches across, a grand variety, the colour a soft rosy crimson.

*Lithospermum graninifolium* (T. S. Ware).—A species with linear leaves, 2 inches long, and small heads of bright blue tubular flowers.



## SCIENTIFIC COMMITTEE.

Sir J. D. Hooker in the chair.

*Rhododendrons*.—Hon. and Rev. F. Boscawen exhibited five branches of *R. arboreum* "improved," being a hybrid between *R. arboreum* and *R. atro-sanguineum*. The truss stands well above the foliage, and is more continuously flowering than *R. arboreum*. The tree is now 15 feet high.

*Malformed Parsnip*.—Mr. Smith exhibited a specimen which had grown through the neck of a medicine bottle; the result was a quaint hourglass-like form.

*Crybe rosea*.—Mr. O'Brien suggested that the Orchid so named and exhibited at the last meeting was probably an *Auhletia*. He also exhibited for Dr. Duke, of The Glen, Lewisham, a fine plant of *Catasetum atratum*.

*Liparis Loiseilii*.—Mr. Ridley exhibited plants of this Orchid; the pot in which the rhizomes had been was allowed to become perfectly dried; but in breaking up the earth and watering this spring they have recovered and are flourishing vigorously. Colonel Clarke remarked on the tenacity of life of Orchid bulbs (*e. g.*, *O. Morio*) under great drought.

*Ophrys Bertolonii*.—Mr. Brockbank exhibited a specimen of this *Ophrys* received from Nice.

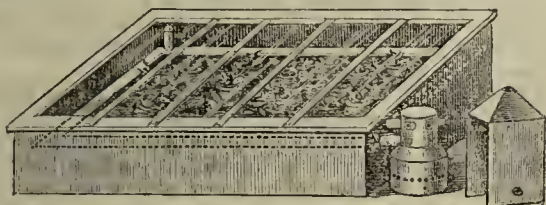


Fig. 77.

*Tobacco cultivated in Great Britain*.—Colonel Clarke exhibited dried leaves of various kinds—1, Plants sown early and gathered early of yellowish brown colour (1884); this was the best quality. 2, Plants left too long in the ground, the leaves being much longer and greener. 3, *Nicotiana rustica*, a very coarse form. 4, Hybrid between *N. rustica* and the Havana Tobacco. It bore the form, habit, and colour of the latter.

*Elms*.—Prof. Boulger showed a fruiting branch of a tree from Barham Court Park (R. Lee, Esq.), supposed to be a "Wych" Elm; but Mr. Boulger observed it has many suckers, is very smooth, with the seed vessel above

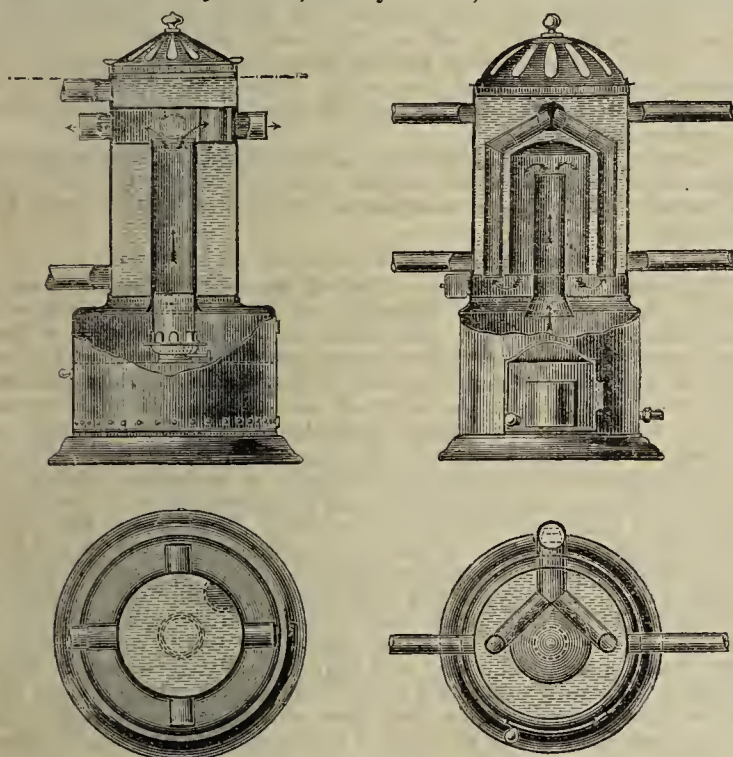


Fig. 78.

Fig. 79.

the middle of the samara, and therefore it belonged more nearly to *Ulmus campestris*. He believed it to be *U. laevis*.

*Gall on Violet*.—He also showed a specimen of gall of *Cecidomyia violae*, from Kent, which in 1884 was found in Essex, and believed to be new to Britain. It occurred on *V. sylvatica*.

*Ecidium on Chives*.—The following communication was received from Mr. Plowright:—Mr. Phillips two years ago drew attention to a *Puccinia* accompanied by uredospores upon Chives, which he found near Shrewsbury. This was called *Puccinia mixta*, *Fekl*. Dr. George Winter, however, classes it with other *Medines* upon various allied species of host plant under the name *Puccinia poeri* (Sow). Later in the same year I found specimens of this *Puccinia* upon Chives at Downham. During the present month (May) on visiting the Downham habitat I was fortunate in finding upon plants which bore the *Puccinia* the *cecidiospores* which answer Dr. Winter's description. The *Ecidium* is distinct from the *Ecidium* on *Allium ursinum*, which has an heteræcismal origin.

*Red-spotted Potatoes*.—Mr. Plowright also sent the following remarks on this subject:—In 1884 it will be in the memory of the Committee that a number of tubers grown at Chiswick in connection with the Jensenian experiments, which were found upon section to be spotted inside, as if from the effects of the *Phytophthora*; so much, indeed, did they resemble truly diseased tubers, that some members of the Committee regarded them as such. Specimens were, however, sent to the three gentlemen in Europe to

whom we owe the most of our knowledge of the Potato disease—namely, to Professor De Bary of Strassburg, Dr. J. Kubn of Halle, and Mr. Jensen of Copenhagen. Without throwing any light upon the true nature of these spots, all three of these gentlemen were unanimous in their opinion that the spotting was entirely unconnected with the *Phytophthora*. An instance of this spotting disease came under my notice the same year near King's Lynn, and I took the opportunity of making a few observations upon the affection. First and foremost, although resembling the *Phytophthora* spots in colour, there is this great difference. The *Phytophthora* spots always originate upon the surface of the tuber and pass inwards, this being, as De Bary has long ago shown, the essential nature of the disease. Secondly *Phytophthora* spots are soon followed by decay (wet rot), the spotted tubers under discussion do not tend to decay at all. I had under observation about half a bushel of suspected tubers, for the tubers show no indication of the spotting until they are cut open, from October till May, but none of them showed any signs of decay. I obtained these tubers from the grower who resided near King's Lynn, and who suffered considerable loss from the affection, because it was impossible to tell how many were spotted until they were cut open; the consequence was that the crop was unsaleable, and, as a matter of fact was used for feeding pigs.

In the following spring (1885) my tuber began to sprout just as healthy tubers would.

On the 24th May (1885) five tubers were selected, which on section showed the internal spotting in a very marked degree; they were planted in my garden and carefully watched. In due course they threw up healthy shoots, which bore healthy leaves and grew in all respects as healthy Potatoes ordinarily grow. On the 16th October they were dug up and examined. They had produced forty-eight tubers, each of which was cut up into slices and closely examined for the internal spots, but not a trace of the disease could be detected.

Hence it would appear that, whatever may be the nature of the affection which gives rise to this internal spotting, it cannot be very readily trans-

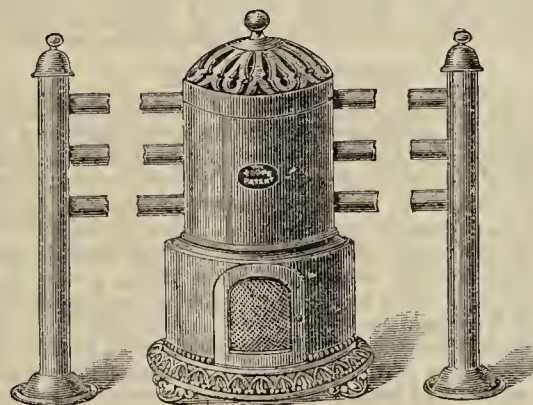


Fig. 80.

mitted to the young tubers by using diseased sets, and although this negative result is all that I was able to arrive at, yet it seemed to me of sufficient interest to lay before the Scientific Committee.

*Deutzia scabra*, Blind Flowers of.—Mr. Henslow reported on his examination of these flowers, brought to the last meeting by Dr. Lowe, and found that they differed from the normal flowers in the following particulars. The sepals were much smaller, as also were the petals. The stamens had short filaments entirely devoid of the wing-like appendages in the usual flowers; the anthers were shrunken and devoid of pollen. The ovary was much smaller, with the placentas incoherent in the axis, and with rudimentary ovules; the style much shorter; and lastly, the stigmas smooth and not papillose. One or two normal flowers were occasionally present on the same raceme as the abnormal. The conclusion drawn from the above appearances was that from some unknown cause the flower buds had been insufficiently supplied with nutriment, causing arrest of structure in every part of the flower. Col. Clarke observed that he had frequently noticed that the earlier flowers were reduced in size, but as the season advanced the normal flowers followed, so that those sent by Dr. Lowe represented a still further reduced condition—no doubt caused by atrophy.

## HEATING SMALL GREENHOUSES AND FRAMES.

WE have received a circular from Mr. Toope of Stepney, in which we find representations of heating small amateurs' greenhouses, and also ordinary garden frames, with a request that if we see anything novel or good in them to bring them to the notice of our readers. The frame heater, fancifully called the "Little Vixen," is, so far as we know, quite new. It is a small gas or oil-heated boiler placed outside, with pipes conducted through or round the frame for heating it, as shown in fig. 77. The plan and section (fig. 78) show the boiler, which, including the lamp, is only 1 foot high and 7 inches in diameter, this size having been heating a frame satisfactorily for some months, the roughest winds not blowing out the light. We think this appliance should be exhibited at horticultural shows and meetings, as a safe, certain, and inexpensive frame heater could scarcely fail to meet with acceptance by gardeners and amateurs, as enabling them to turn their garden frames to useful account in winter as well as summer.

The "Champion Heater" for small greenhouses appears to differ from others we have seen in the method of heating the water. The flame (from gas or oil) strikes directly on the water at the top of the



boiler, the heated water expanding and passing at once through the flow pipe into the house. The heat is then forced downwards into the soot box, rising upwards again through the water, the fumes of combustion passing to the open air through a pipe at the top. By this arrangement it is claimed that the greatest possible amount of heat is absorbed by the water, the proof being that the "outlet pipe for the fumes being cooler than the hot-water pipes" in the house. The plan and section fig. 79 show the principle of the boiler, the arrows indicating the vertical transit of the heat. Fig. 80 shows the apparatus with pipes attached from both sides, but, as the circular indicates, they can be led from either side according to the arrangement of the structure to be heated. The necessities of an amateur led to its production, who desired to heat his greenhouse inexpensively with a minimum of trouble to himself, while producing a sweet atmosphere for his plants. A hot-water heated propagator is also illustrated in the circular in question, and is well adapted for raising plants from seed or cuttings at any season of the year.



#### KITCHEN GARDEN.

**OLD TOMATO PLANTS.**—Where plants have been growing and fruiting for some time in 8½ or 10-inch pots or boxes, they may now be showing signs of having done all they can in their confined rooting space, as well as having filled all the room available for the top growths; but we should not advise such plants to be thrown away as being of no further use, because if they are planted against a wall in the open air they will soon recommence growing and fruiting, and they will mature quantities of fruits long before any can be gathered from young plants in the open. The old plants will not look so well as the young ones, but early fruit, and plenty of it, is the object to aim at, and the old plants are the best for this. They should have rich soil, and the shoots must be tied up carefully. Under glass the shoots of these may have been constantly restricted, but they must be allowed to make fresh growth in the open, and as soon as a quantity of fruit has been formed, crowding of the wood must again be avoided.

**THINNING YOUNG VEGETABLES.**—The recent excellent rains have caused young vegetables to grow very rapidly, and we must again call attention to timely thinning. Just now is a busy time in all departments, and some may be inclined to think that so long as the seed is sown and the plants growing, progress is being made, but if the plants are allowed to be crowded in the beds or rows they will receive a check from which they will not readily recover, and it may end in inferior produce being grown where only good first-class crops ought to have been found.

**ONIONS.**—We never remember so few of the autumn-sown Onions throwing up flower stems as this spring. Out of some thousands growing rapidly at the present time there are not a dozen showing flower. This satisfactory state of matters is, we hear, very general, and the autumn-sown Onion crop will be a very remunerative one this spring and summer. Some of the White Elephant type, which are very early, are now ready for use, as they have formed bulbs several inches in circumference. We have this week finished our summer crop of last year. James' Keeping remained longest in sound condition, but like some others, they at last began growing, and had to be thrown away. Spring-sown Onions are late, but the seed has germinated freely and the plants are healthy. It is now the maggot is apt to appear, and every effort should be made to suppress it. It is a bad plan to allow it to destroy some of the plants and then try to check or exterminate it. Prevention is much better than cure in this case, and whether its presence is suspected or not, the plants should be dusted freely with soot once a week until the bulbs are well advanced in growth. If this can be done during rain so much the better. A little salt or guano may be mixed with the soot with advantage. Some growers thin their Onions; others do not. When we desire to have large bulbs for show or any special purpose, we thin them to 6 inches or so apart, but the general crop for kitchen use is seldom thinned, and although the bulbs may develop until they are almost growing on the top of each other, they still become of a very useful size, and for a heavy crop there is no better way of growing them than this.

**ENDIVE.**—While Lettuces are in demand for as long a season as possible Endive is not so much valued at all times, and a supply of it from August to September until the new year, or thereabouts, is generally as much as anyone desires. It is a very acceptable addition to salads. The Green Curled variety, or forms of this, are most ornamental, but the Broad-leaved Batavian is the hardiest, and should be grown late. A small patch of seed will produce a great many plants, and if sown at once the plants will be ready for transplanting by the end of June, and will become useful in August. At that time, however, it is not long in running to seed, and only small batches should be sown or grown at a

time. If a little seed is sown at intervals of a fortnight or three weeks a constant succession will be easily kept up.

**PEAS.**—American Wonder in the open is now in pod, and although there is none of the gather-and-come-again character about it, it will soon furnish a good dish. Where taller varieties are in bloom, and it is desired to have them in as soon as possible, take the points out of each of the main growths. This will cause the pods to fill rapidly. Earth up and stake all advancing crops, water freely in dry weather. Late varieties should now be sown in quantity. Give them a deep rich soil and sunny position. Some approve of sowing early varieties for late use; we do not, and adhere to such good sorts as Laxton's Omega, Sutton's Latest of All, and Ne Plus Ultra. Peas generally promise to be good.

**CHICORY.**—This is no use in summer, but when large roots are produced before autumn, and these are lifted and forced in a dark place, a most delicious salad matter is readily produced in quantity. To have it in good condition the seed should be sown now. We always sow a few rows in any odd corner of the garden where the soil is deep and rich, and it never fails. The seed should be sown in rows 15 inches apart, and 2 inches below the surface. When the young plants come up they should be thinned to 6 inches apart, and summer culture consists in keeping weeds down by the use of the Dutch hoe.

**PARSLEY.**—There is no more important crop in the kitchen garden than this. Its absence creates inconvenience everywhere. A supply must be forthcoming. Old roots have been throwing up plenty of leaves lately, but the flower stems are also appearing, and as these roots must keep the cook going until the spring-sown plants are ready, the flower stems should be cut down as fast as they appear. Seedlings are now about 2 inches high, and this is an excellent time to transplant quantities of them. Patches should be planted all over the garden, as if one lot fails another may succeed, and if a row is put in along the edge of a walk, or the bottom of a wall, or at the end of any crop where there is not sufficient space to plant anything bulky, it is surprising the excellent quantities of Parsley that will be produced. This crop will bear and be benefited by the same treatment as the Onions in dusting soot and other fertilisers over the plants in damp weather.

**RIDGE CUCUMBERS AND VEGETABLE MARROWS.**—These are now beginning to grow freely in the open. Do not protect them any longer than is necessary, and begin training the shoots out from the first. Crowding must be avoided, and pegging down or tying must be practised early. Where the growths are running down the sides of mounds, a few branches should be put round the bottom of the heap, when the growths will scramble over them, and the fruit will form freely and remain clean amongst the branches.

**PLANTING OUT CAULIFLOWERS.**—Brussels Sprouts, Cabbage, and all plants of this class should be inserted as the plants become ready and the ground vacant. Those transplanted during wet weather never fail to do well.

#### FRUIT FORCING.

**PEACHES AND NECTARINES.**—*Early House.*—Trees of the very early varieties, such as Alexander, Waterloo, and Early Beatrice, will now or soon be cleared of the fruit. The shoots on which the fruit has been borne, and not being required for the extension of the trees, should be cut away to admit of the full exposure of the foliage to light and air. Syringe forcibly to cleanse the foliage of red spider, and if this and scale continue troublesome the prompt application of an insecticide will be necessary to eradicate those pests. It is highly important that the foliage be kept healthy, and to prevent over-maturity or premature ripening of the wood it is necessary to keep the house as cool as possible by ventilating to the fullest extent after the fruit is gathered. The borders, floors, &c., should be kept moist, and in showery weather remove the roof lights. Keep gross laterals stopped, but avoid giving a check by a great reduction of foliage at one time, as this has a tendency to hasten the ripening of the growth, and when this is the case the trees will be swelling the buds through over-development when they should be going to rest. Trees of Hale's Early, A Bec, Early York, and Early Grosse Mignonne, with Royal George in the same house or in a house to themselves, which is much the best, will be ripening their fruit, and must not be syringed, though if the trees become infested with red spider a thorough syringing may be given when there is a prospect of a fine day, as with the water hanging any length of time the skin is liable to crack in fruits that are partly ripe, whilst those that are nearly ripe will be much deteriorated in quality. The trees must not be allowed to suffer by want of water at the roots, but any excess of moisture at this stage has a tendency to cause splitting at the stone.

*Houses Started Early in January.*—The fruit will now be well advanced for ripening. The leaves having been turned aside, and the fruit raised on laths placed across the wires of the trellis with its apex to the light, will be coloured well, though the absence of sun has not allowed the attainment of high colour this season, and the ripening is later than usual. If the weather continues cold and wet gentle fire heat will still be necessary to secure a circulation of air constantly, the temperature being maintained at 60° to 65° artificially at night and 5° to 10° rise by day. Cease syringing so soon as the fruit begins to be soft, and take care to have the foliage free from red spider before the syringing ceases, or the pest will increase so rapidly whilst the fruit is ripening as to seriously jeopardise future prospects. See that there is no deficiency of moisture in the borders, and, if necessary, give a thorough supply of water, mulching with some light material such as spent Mushroom-bed manure or partially decayed stable litter.

*Succession Houses.*—Do not hurry the trees during the stoning, but allow time for this exhausting process. Allow a rather free extension of



the laterals as an encouragement of root-action, but be careful not to crowd the principal foliage, and keep insect pests in check by syringing twice a day. When the fruits have stoned remove all surplus fruits, and turn the others to the light to insure their colouring well from the apex. Give thorough supplies of water through a good surface mulching of manure, and feed weakly trees with tepid liquid manure. Vigorous trees will not need more than a surface mulching, as high feeding will only cause grossness, and must be studiously avoided. Ventilate early and close in the afternoon with plenty of atmospheric moisture, so as to raise the heat up to 80° or 85°, and ventilate a little afterwards for the night, the temperature being allowed to fall to between 60° and 65°.

**Late Houses.**—Train and tie-in the young shoots that are to carry next year's crop, and allow them to extend as far as space admits, being careful to avoid overcrowding. Pinch all side shoots that are not wanted for next year's fruiting or for furnishing the trees, and any gross shoots should be stopped so as to cause an equal distribution of the sap. In thinning leave a few more than will be required for the crop. A Peach to every square foot of trellis covered by the trees is ample; Nectarines may be left a little closer. Keep the foliage clean by syringing twice a day in fine weather, and always sufficiently early to allow the foliage to become dry before night. Mulch the borders with manure, or if the trees are young and vigorous some lighter and less rich material will be better. Water thoroughly whenever necessary, always sufficient given at a time to reach the drainage. Ventilate early, and increase the ventilation with the sun heat, closing early if the ripening is to be accelerated; but if wanted late keep as cool as possible by free ventilation day and night.

Young trees in course of formation for filling their allotted space should be properly disbudded, leaving the main branches or shoots for forming them about 18 inches apart, and the bearing wood at 18 to 24 inches along them, training the extensions their full length, and pinching the side shoots on last year's wood to two or three leaves, so as to form spurs. Laterals should be pinched at the first joint, and successional growths as made.

**MELONS.**—Houses or pits in which the fruit is ripening will require a rather dry and warm condition of the atmosphere, allowing a circulation of air constantly, and the moisture at the roots should be moderated, yet if kept too dry the foliage will suffer and the prospects of a second crop seriously interfered with. When the fruit is cut clear out for another crop if the plants have fallen a prey to red spider, thoroughly cleansing the house, the woodwork with softsoapy water, the glass with water only, limewashing the walls, and removing the whole of the soil. If fermenting materials have been used for bottom heat add some fresh and mix with the top foot or 18 inches of the old material, some of the most exhausted being removed. Make firm, put in ridges or hillocks of good loam; if not calcareous add some old mortar rubbish, and if deficient of grit add road scrapings. Heavy loam will be improved by having an addition of charcoal as well as mortar rubbish and road scrapings. Tread the hillocks or ridges well down after the soil has been in a couple of days. Make the soil firm about the plants, and the balls and soil being moist no water will be needed until the roots have taken to the fresh soil. Shade from bright sun for a few days, and maintain a genial condition of the atmosphere by damping available surfaces in the morning and afternoon. Ventilate between 70° and 75°, keep through the day at 80° to 85° from sun heat, and close sufficient early to run up to 90°.

#### PLANT HOUSES.

**Callas.**—Plants that are not required to flower any longer may be hardened and planted outside. In planting them, a trench should be made and liberally enriched with manure at the base, as well as the soil to be returned again to the roots. Turn the plants out of their pots and divide them, if they have not been grown singly or an increase of the stock is needed. When planting is completed they should be left a few inches below the level of the ground, so that good soakings of water can be given during dry weather. This is all the attention needed until they are lifted in September. If sufficient stock cannot be obtained by division of the strong plants, the small suckers may be taken off and placed in small pots, grown for a time in heat, and then hardened and planted out. Care must be taken that these plants are not checked when placed out, then strong useful plants for 6-inch pots will be produced.

**Kalosanthes.**—The earliest plants will soon come into bloom under glass. A portion of the stock should be carefully hardened and stood outside where they will not be fully exposed to the sun. These will flower when those kept under glass are over, and therefore form a capital succession. Plants intended for flowering next year should not be pinched, but grown, or they will fail to flower. A clear season's growth must be allowed to accomplish this end. These should be grown in cold frames, giving them abundance of air on all favourable occasions. About the end of June they may be stood or plunged outside in a sunny sheltered position to harden and ripen their growth, and the result will be that every point will show flower the following spring. Young plants struck last autumn or this spring, and now in small pots, may be placed in 5-inch pots and pinched from time to time to insure their making bushy specimens. For ordinary decoration it is quicker and better to place four or five cuttings in each 5-inch pot, and root them together, and then allow them to flower the following season in the same pots. The shoots that fail to flower are suitable for this purpose, and may be rooted any time between now and August.

**Liliums.**—Those in houses or frames are growing rapidly, and where there are large batches of a kind grown the whole will come into flower about the same time if kept together under glass. To obviate this, the stock should be divided, and the latest hardened and plunged outside, by

which a capital succession of decorative plants will be produced. The whole of the Lancifolium section required for late flowering may be safely grown outside after this date. These plants should never suffer by an insufficient supply of water at their roots or they are certain to fail. On the other hand, they must not be saturated or they are equally liable to injury. To save labour in watering, the pots may be plunged in a light open position not fully exposed to the sun.

**Hydrangea paniculata grandiflora.**—This is a useful decorative plant in 7 and 8-inch pots, and when well grown is even more beautiful than it is when outside. If grown in the greenhouse it must occupy a light airy position fully exposed to the sun. In a shaded house or confined atmosphere it soon draws up weakly, and if it flowers will only produce very small heads of bloom. The plants do best in a light airy frame standing upon some moisture-holding material where plenty of air can be given by day and the frame closed early in the afternoon to enclose as much sun heat as possible. If the pots are full of roots, weak stimulants should be given every time water is needed.

**Isolepis gracilis.**—This is one of the most useful decorative plants that can be grown for forming a front edging in plant houses whether warm or cool. It gives but little trouble, and if divided now will remain in good condition for twelve months in the same pots. Pots 3 inches in diameter are very useful, and if some of last season's plants are divided they will make four or five each, and the remainder of the stock can do duty while these are established. The old ones can then be thrown out or broken up to replace those that have done duty in warm structures. If this is done the whole of the stock in the houses will be in good condition until next spring. They should never suffer at their roots by want of water, and two or three applications of Standen's manure during the season will do them good after their pots are full of roots.

**Scented Pelargoniums.**—The foliage and shoots of these are now largely used in a cut state for associating with flowers; in fact, many are preferred to the fronds of Ferns in rooms on account of their lasting qualities. There is no difficulty in maintaining a supply during the growing season, but for the whole of the winter and spring the plants must be provided by autumn. For this purpose numbers of the different species most in demand should now be struck and grown on in 5 and 6-inch pots, for young vigorous plants produce much finer foliage than old plants. The cuttings should be inserted singly in small pots and placed on a shelf in a warm house and shaded from strong sun.

#### THE FLOWER GARDEN AND PLEASURE GROUND.

**Selections of Bedding Plants.**—A considerable number of proprietors of gardens annually purchase the principal portion of their bedding plants, and a few hints as to which are the best in each section may prove acceptable both to them and others who may wish to add a few fresh sorts to their stock. They are given somewhat in alphabetical order, and include some in all sections of bedding plants. Abutilon Darwinii tessellatum, grand marbled foliage, is suitable for dotting among Iresines, Violas, and Verbenas, or for mixing with sub-tropical plants; A. Thompsonii is also suitable for this purpose, but is not so effective.

**Tuberous Begonias.**—These ought to be grown in every garden. Planted thinly among Mesembryanthemum cordifolium they are certain to please, and provided they are given a good soil to root in, will stand and bloom in either dry or wet weather. Nurserymen who make a speciality of them supply bulbs of good bedding sorts cheaply. B. ascotensis and B. weltoniensis are both suitable for bedding out. Shrubby Calceolarias, Gaines' Yellow; amplexicaulis, lemon yellow; and Sparkler, crimson and yellow, are all effective. Cannas of any sort are of noble appearance, especially when planted in groups. Some of the best are atro-purpurea, Chateri discolor, erecta, gigantea major, Henri Vilmoren, Maréchal Vaillant, nigricans marginata, muscicola hybrida, Prince Imperial, and picturata fastuosa. Chrysanthemums.—Good early-flowering sorts for the borders are Fred Péle, Hendersonii, La Petite Marie, Madame Piccol, Madame Desgrange, Mrs. Cullingford, Précoceité, Scarlet Gem, and Midle. Jolivat. Marguerites are suitable for the flower beds, and thrive and flower abundantly in all weathers. In rather poor soil or in dry positions they are singularly effective in mixture with Petunias, while a few strong plants in mixed sub-tropical beds brighten these up surprisingly. C. coronarium and C. frutescens are still the best for bedding, and Etoile d'Or is a good yellow companion. Coleus Verschaffeltii is the only reliable bedder. A mass of this, planted thickly in the first instance, and surrounded with a broad band of yellow-leaved Pelargoniums, never fails to please. In favourable localities some of the choicer sorts may be planted out in the mixed borders.

**Dahlias.**—Any of these are effective in the back rows of mixed borders, but we will give a few of the best in each section. "Show varieties"—Imperial, Condor, Constancy, Earl Radnor, Henry Walton, Herbert Turner, Mr. Gladstone, James Cocker, Lady Wimborne, Miss Cannell, Mrs. Shirley Hibberd, Prince Bismarck, Mrs. Stancomb, James Vick, Georgiana, Delight, Canary, Royal Queen, and William Rawlings, "Fancies"—Alderman, Chorister, Flora Wyatt, Gaiety, Henry Glass, cock, John Forbes, Maid of Athens, Mrs. Saunders, Parrot, John Saunders, Mandarin, and Florence Stark. "Pompons"—Lady Blanche, Golden Gem, Little Prince, Rosetta, Fanny Weiner, Favourite, Isabel, Cupid, E. F. Junker, Nemesis, Guiding Star, and Royalty. "Singles"—Paragon, Acquisition, Terra Cotta, Velvet Mantle, Grandee, White Queen or Alba, Rosy Circle, Aurata, Mauve Queen Improved, Negress, Defiance, and Bertha. "Cactus Dahlias"—Constance, Mr. A. W. Tait, Picta formosissima, Glare of the Garden, and Juarezii. "Bedders"—Rising Sun, Gem of the Dwarfs, White Bedder, King of Dwarfs, George Thompson, and Alba floribunda. Fuchsias.—Golden Fleece and Golden Treasure and sometimes bedded out, while any of the free-growing and free-flowering



varieties are very pretty either in groups or the centres of beds, or in mixture with other plants not commonly bedded out. *Gladioli*.—For massing *branchleyensis* and *gandavensis* are the cheapest that can be bought, and if a variety is required unnamed seedlings can be bought at a comparatively cheap rate, and will produce many fine spikes nearly or quite equal to named sorts costing double the money. *Heliotropes*.—For bedding out *Miss Nightingale* is still one of the best, and *President Garfield* is also good. *Heliotropes* are most effective when massed together in the centre of large beds, and they may be edged with any kind of *Pelargonium*. *Lobelias*.—*Brighton* and *pumila magnifica* are equally good blues; *pumila Ingrami* and *Swailey White* are the best whites, and the double *pumila grandiflora* succeeds occasionally. We only grow *pumila magnifica*, and it never fails. *Lantanas* are not much grown now; but such sorts as *La Nieve*, *Mine d'Or*, *Ne plus ultra*, *Distinction*, and *Magenta* are very pretty in mixed beds.

*Zonal Pelargoniums*.—These are the most important of all, being by far the most extensively employed. “*Golden Tricolors*.”—Mrs. Pollock, Miss Batters, Lady Cullum, and Sophie Damaresque. “*Silver Tricolors*.”—*Porteus*, Mrs. R. B. Postans, Mrs. Luing, Lass o'Gowrie, and Prince Silverwings. “*Golden Bronze*.”—Black Douglas, Maréchal McMahon, King of the Bronze, and Golden Harry Hlover, the last-named for edging purposes. “*Yellow-leaved*.”—Crystal Palace Gem, Creed's Seedling, and Robert Fish, the latter for edging. “*Silver variegated*.”—Flower of Spring, Mrs. J. C. Mappin, Bijou, and Princess Alexandra. Bedding Zonals.—West Brighton Gem, Vesuvius, Triomphe de Stella, Star of Fire, and Lord Gifford, scarlets; Henry Jacoby and General Outram, crimson; Master Christine and Mrs. Turner, pink; Indian Yellow; Lucius, cerise; Madame Vaucher and Niphetos, white. For hot and rather dry positions the semi-doubles, notably Guillion Mangilli, F. V. Raspaël, Lord Cecil, Madame Thibaut, and Mrs. A. Lattey are very suitable. Some of the double Ivy-leaf varieties are sometimes effective round the edges of beds, and of these the best we have tried are *Gloire d'Orléans*, Sarah Bernhardt, A. F. Barron, and Madame E. Galle. *Petunias*.—Seedlings are principally relied upon, but such good old sorts as Ashford Belle, Crimson King, Spitfire, and Purple King are sometimes preferred. *Salvias*.—The only variety extensively bedded out is *Patens*, and this lovely blue tuberous-rooted sort is grand in mixed borders or for back lines of ribbon borders. *Veronica Andersonii variegata* is not often seen, but is a very effective bedding plant, especially in mixture with *Verbena venosa*. *Verbenas*.—The old Purple King is still the best, and other good sorts are *Crimson King*, *Snowflake*, and *Firefly*. *Violas*.—These are rather superseding *Verbenas*, and if planted early in good soil are remarkably showy. *Blue Perfection*, *Favourite*, *Tory*, *Lutea grandiflora* major, and *Vestal* are all good. *Iresines*.—These must not be omitted, as they are very popular. *Herbsti* is the strongest grower, brilliantissima being a slight improvement on it. *Lindeni* is of more compact growth and richer in colour, but succeeds best on light soils.

## THE BEE-KEEPER.

### PLACING AND REMOVING SUPERS.

IN the endeavour to assist those who have bees in their care for the first time I am going to anticipate the happy day when the bee-keeper sees that the time has at last arrived to place supers on these stocks from which he does not desire to see swarms issue. It is in every case a critical period, for a little mishap, an error of judgment or mismanagement now may frustrate all the hopes of the anxious apiarian raised during the months when he has seen his stocks growing stronger and stronger, and at last showing such evident signs of want of room as to warrant an attempt at least to get them to work in supers. Few bee-keepers of little experience place their first super without some anxiety, the more especially so if they have to deal with vicious bees, which attack apparently without cause any one attempting to interfere with their affairs. Let me hope, however, that the majority will have kindly stocks, willing to endure careful handling to deal with, but in every case it is wiser until perfect confidence has been acquired to use not only a veil but gloves also, unless the operator is one of those miserable creatures who are unable to enjoy the pleasant sensation of a sting sent home by the furious efforts of an enraged insect. Confidence in himself is a great factor in making a bee-master. In all manipulations movements must be so slow and cautious as scarcely to be perceptible, the slightest hurried gesture leading to mischief. Gentleness begets gentleness, let this always be borne in mind, but many I fear seldom realise it until, roughly handling the bees, they have by them been roughly handled. It is scarcely necessary to say that this is an article for “beginners,” and in giving a detailed account of how to place and remove supers it is for their information that I am specially writing.

A stock in a straw skep is ready for a super, which may for our purpose be imagined to be an ordinary bellglass fitted with its usual appendages. Whatever kind of super is made use of makes little material difference, the method is the same. Armed with veil and gloves and a smoker the operator, if he is able to choose his own time,

goes to the hive about ten o'clock on a fine warm sunny morning when the bees will be working freely; but if, as in my own case, he is away from the apiary from early morning till evening, and so has no choice of time, he need not hesitate to place his super early in the morning, since if a stock is ready and the day proves fine possession will soon be taken of it by the numerous bees ready to work, but unable to find room in the hive. I have placed them as early as seven o'clock, and should not hesitate if driven by necessity to perform the operation at an even earlier hour. The smoker is to be taken as a matter of precaution only, for no smoke must be used unless it is absolutely necessary to resort to its use. The object is not to drive the bees down from the top of the hive where they are near the super, but rather to disturb them as little as possible. If smoke is used they will be driven down, therefore abstain from using it. I do not mean that a little smoke will prevent the bees from entering the supers, but it may delay their entrance. If the stock has been fed by the ordinary bottle feeder a zinc will be on the top hole, if not a cap or other cover; and in either case the first thing is gently to loosen the cover by passing a string or wire beneath it, taking care not to kill a bee, but drawing the string or wire through as slowly as possible, thus severing the connection which always exists between it and the hive. If this cover or zinc is now raised very slowly and cautiously scarcely a bee will rise and take wing, and the super may be placed in its position without any further action. If, however, there is a chance it is not at all an objectionable plan to bruise a few of the topmost cells—those of course containing honey—as the bees will then at once come to repair the breach and enter the super.

But it may be said that if the stock is not ready for supering nothing will induce the bees to work it. Sometimes, however, there is a difficulty—so I have heard it said—even when stocks are ready for extension, to get them to enter supers, and sections are placed in the body of the hive until they are partially worked out; but in my own apiary I have had no experience of this kind, but find that if a stock is really full of bees and brood and honey, supers are taken possession of immediately, and not deserted unless the weather is such that no honey can be collected, and in this case I at once remove all supers and give a little food each day until a “good time” comes.

There are many different materials with which supers are covered. Each one has his own; some have carpet, some one thing, some another. In my apiary anything warm and convenient is pressed into service, but the preference is given to a pad, the outside of which is made of plain calico or other cheap material, and the inside of cotton wool. These pads or cushions may be of any size, and the thicker they are the warmer they keep a glass or rack of sections. They are useful, not expensive, neat, and very warm; not a necessity, however, perhaps a luxury. Whatever the covering supers must be kept warm, and it is very rare to find one too heavily covered. The super is now placed covered snugly up, and the bees at work, and after a lapse of time, varying according to its capacity and the kind of weather experienced, it will need removal, and then a rather more formidable manipulation is necessary; in fact, sometimes it is very tedious, unless, as in the case of sections, the bees may be swept off the combs and so easily dispersed. The glass or cap with which we have to deal does not lend itself to this method, so that other means of clearing it must be devised; but when removing these supers means often suggest themselves to the mind of a thinking bee-keeper, and he may use any plan occurring to him, always taking care not to damage the comb, taint the honey, or injure the bees.

An hour or so before removing a super it is advisable to loosen it from the hive by passing a string or wire between it and the hive, as in the case of taking off the zinc or cap as before explained, and prop it up by wedges a little—an eighth of an inch is amply sufficient—from the hive, so that the bees may have a chance of licking up the honey spilt by the string or wire cutting the cells in severing the connection between the cap and the hive. When this has been done a carbolic sheet may be laid on the hole in the top of the cap, or a little smoke may be injected; and this will cause a stampede and general rush into the hive, but still many always remain. They will, however, rapidly gorge themselves with honey and be in an amicable state of mind. When all the bees which seem inclined to do so have left the cap it should be removed from the stock to some quiet shady spot, being carried with great care and inverted, and for this purpose a flower pot is a convenient receptacle to hold it in a reversed position, and the exit of the bees prevented by a board placed over its mouth. The stock can now receive another super, or if the season is very far advanced its ordinary cover; and all this time the bees in the cap will, unless the queen is with them, be driven to distraction by their imprisonment and the more ready to leave when opportunity is given them.

How shall we tell if the queen is in the super? Her presence or absence is readily ascertained by the manner of the bees, for if they



run hurriedly about seeking exit, all in a state of excitement, crossing over the combs in tremulous anxiety, her majesty is absent. If, on the other hand, the bees, ten minutes after the removal of the super from the hive, evince none of these signs of discomfort and do not seem anxious to depart, but quite at rest, the queen is there. In this case, if she cannot be caught without injury—and she very rarely can—the super must be replaced upon the stock and the attempt be made some hours after; or better still, another day, when it may please her majesty to keep within her own more proper domain and not commit the trespass of wandering from the brood nest to the honeycomb. But if her absence is ascertained the bees may now be given a chance to leave the super; but it is well to keep changing from spot to spot, as the leaving bees sometimes return with others anxious to regain their stolen store and cause an unnecessary disturbance; in fact, if not watched closely two will enter for one that leaves. A super in course of renewal must be carefully watched and guarded vigilantly from robbers often, especially when the honey flow is over, on the watch for spoils. Many bees have now left, but numbers still remain, and these may be induced to leave by gently tapping on the side of the super. I often think that preventing them from leaving for five or ten minutes at a time has a good effect, as, realising their captive position, they gladly escape when the means are given them. It is also a good plan to lay a clean white cloth over the mouth of the cap, occasionally turning the inner side out, for the bees rising to the top of the super cling to the cloth, and this being now and then turned over leaves the bees clinging to it on the outside, and these depart, while others take their place, ready in their turn to be by the moving of the cloth left outside. If they do not readily leave the cloth they may be swept off by a feather. A little perseverance in this plan will see the numbers decrease rapidly until but few remain, and these can often be ejected by a feather; but as it is far easier to get a live bee out than a dead one the greatest care is requisite, or injured by the feather, yet not killed, the timid frightened insect goes to the inmost recesses of the comb, and there, unable to move, yet desperately clinging to the comb, defies all efforts to effect its removal. Bees spoil the appearance of a super. The less frightened they are the more readily they leave. The more frightened they are the longer it takes to remove them.

There is one plan which seems to succeed with many when all others have failed; and although I have never myself had recourse to it, it seems not unlikely to be useful. It is well known that all insects are at once attracted by the light, and this may be seen by the helpless infatuation which seems to possess the moth as it flutters round the flame bent on its own destruction. So, too, with bees. If therefore the super is taken into a perfectly dark room, and the light allowed to stream in through one small opening, only the bees, they say, will leave the super and at once fly to the light and return to their hives. If there is no more convenient place a large flower pot seems to offer itself in the place of a dark room, the light being completely shut out except what comes in through the hole at the bottom. By some of these methods all supers can be cleared. If a sectional super is employed a great part of this manoeuvring is unnecessary. Some advise that the sections be taken out each one, while the rack remains upon the hive. I do not, nor do I approve of this method of taking away each section as filled, but rather prefer to leave the earlier finished ones until at any rate all but the extreme outside boxes are completely sealed. Honey loses nothing by remaining on the hive, but rather gains in being thoroughly well ripened in the most natural way. Take the honey by the rack as one super in the same manner as before, except that there being no spilling occasioned by loosening the rack from the hive prior to its removal, there is no necessity to wait as in the case of the ordinary glass or cap. The propolis fastening the rack and the hive together may be severed, and the former may be at once removed to a quiet shady spot; the sections taken out each one singly, the bees swept on to a cloth, if the ground is covered with grass, and left to go home at will, or at the end of the operation they may be carried to their hive, but few will remain. In sweeping the bees from the comb care must be taken to sweep them head downwards, or they will sting and so cause inconvenience, and as each section is cleared it must be placed in a bee-proof crate, thus preventing, as I have often seen, strange bees getting on them and necessitating forcible removal, thus wasting time and energy. Unfinished sections may be returned either at once, or they may be stowed away until another rack being removed there are sufficient of these "returns" to form a rack. If, however, another rack of empty sections is to be placed as soon as the full one is removed, place the unfinished sections at the sides, and those with foundation only in them in the centre, so that the whole rack may be the more probably sealed at the same time, the outside ones being given the advantage because they are generally the last to be worked out and sealed. Does anyone now feel unable to place or take away a super? if so, I am unable to assist him further at present, but no doubt "A Lanarkshire Bee-keeper," whose opinion we all value so highly on all apicultural matters, may be able to give some useful

hints and improvements upon the methods I have enumerated, and if so I, and in all probability all others, will be glad to read what he to whom we all look as the safest guide in the management of bees, although we may differ slightly in some unessential points, has to say on the subject.—FELIX.

#### EXTENDING A FRAME HIVE.

WILL you give me your advice on the following? I have a bar-frame hive with seven bars at present, five of which are sealed over. I wish to take one swarm then to get as much honey as possible in sections. Ought I to add more bars before or after swarming? and how many bars should I add at one time?—R. C.

[As you do not state the size of your frames, we cannot say positively how many more frames should be added. Our bees are at this moment occupying space equal to between 3000 and 4000 cubic inches; in fact, the measurement of the best give 3318 cubic inches for non-swarming hives, and for swarming ones 2754 cubic inches. If your hive is crowded on to the seven frames you should insert one frame of foundation in centre of combs and another outside until you have a hive of the size above. Perform this work as you observe the bees crowding towards the outside. If your bees had been occupying shallow boxes of the Stewarton type it would be more natural for the bees and easier for you to add a division at a time. Two hives  $15\frac{1}{2}$  square by 9 inches deep is a good size for either swarming or non-swarming hives. We would advise you in an uncertain year like this, to work your hive on the non-swarming principle, then immediately after the honey season is past make an artificial swarm or more and feed up to the necessary weight, having the bees in full-sized hives with young queens at their head. This plan will give the best return this season and put you on the best footing for next year.]

#### HIVES WITH FRAMES ACROSS OR PARALLEL TO THE ENTRANCE.

I FREQUENTLY see the practice of having the bar-frames parallel with the entrance condemned. I shall be glad if you would give the reason, as I have one. A friend of mine, who has kept bees for about ten years, has one or two hives made on this principle, and he has quite as good results from them as from the others, and he cannot see why they should be condemned. Bees do not always build their combs at right angles to the entrance, as he has a skep, which I have seen, in which the combs are nearly parallel with the entrance.

I saw lately that when you take the frames out of a hive you always ought to take out an even number. I shall be glad if you will explain this as well.—H. T. S., *Lincoln*.

[Our reasons for the condemnation are many. The principal one, however, is judging by results. When we see a number of hives managed on two different principles, standing side by side, receiving the same treatment, and the bees in those having their frames across the entrance dead, while the others are alive and extra strong, as we have often observed, and particularly this year, we may safely conjecture that having the frames so placed is the cause of the mortality. But it would not be fair to condemn on that alone without being able to give other reasons.

The argument that bees do not always build their combs at right angles to the entrance does not support the theory; neither is the argument of having good results from those having their combs parallel to the entrance. Results of that sort go by degrees. The locality may be good enough for a hive, if properly managed, to yield to its owner 400 lbs. of honey, and yet he may only be able to get, say, 20 lbs., and this low yield might be called "good results." This is by no means uncommon. Then it must be remembered that bees in a hive are not there according to nature. Bees in a state of nature, as a rule, have their combs suspended, for instance from a shelving rock thoroughly protected from above, but from the sides or beneath the space is open for ventilation. When they take up their abode in trees they are similarly protected, having always breathing space beneath. When bees take up their abode in a hive, and left to themselves, they incline to twist their combs, and, as a rule, the ends of the combs are twisted towards the entrance in nine cases out of ten, and the twisted combs is Nature's adaptation towards a comfortable breeding place. But our bees are not in Nature's keeping.

If you select a room having one doorway and no other outlet, fill the room with partitions open at the bottom similar to the combs of the bees, you will be unable to crowd animal life into these spaces, but you can try the experiment with them both ways. With the ends of the combs to the entrance you will find the current of air enter some of these, and return by others. The bees can regulate this to a great extent, drawing in the fresh and expelling the vitiated air, and may be able to alter the course, but a strong hive will expel the vitiated air before it condenses on any part of the hive, and the hive has always a good circulation of air. The combs placed across the entrance, the current of air may be either almost still or extra strong, depending a great deal on the doorway. Having the combs across the entrance the perspiration of the bees between the combs strikes the wall opposite, and condenses thereon. Now, a bee can suffer a number of degrees of frost in a dry atmosphere, and although it be chilled, it will in gentle heat revive and fly about, but a bee coming in contact with damp at a temperature much above freezing dies instantly—the reason I advocate ventilating floors. Hives with frames across the entrance are termed warm hives, the reason I condemn them. The interior at times during winter becomes in a measure suffocating to the



bees, they fly out, and are very often lost. They are liable to damp internally, therefore is more fatal to bee life than an airy hive. If I mistake not this was the objection the late Mr. T. W. Woodbury had to hives having their frames across the entrance, and his opinions were entitled to respect. A bee leaving its hive during winter will return much quicker if its frames are at right angles to the entrance than if they were across, because in the former case it is in a better sanitary condition than the other, and leaves their combs right at the entrance in a cleanly state. Not so with the others, where they have to creep along a dirty floor, the *débris* in which adheres to the bees, and they must rid themselves of this before they will return to their hive. When the frames are placed across the entrance the pollen is stored in the front combs, and in this position is destroyed during winter, and if used by the bees is almost sure to start bacilli to activity, which are liable to create dysentery and foul brood. Supering cannot be carried out so successfully with hives having their frames across the entrance as with those at right angles; in fact, I do not know one redeeming quality in having the frames across the entrance. They may succeed in some climates or localities, but in ours they will not. Preserving bees from May till May is the secret of profitable bee-keeping, and that should be done without a single manipulation from September till May.

Your second query we cannot answer without having full cognisance of the article referred to.—LANARKSHIRE BEE-KEEPER.]

### INCITING ROBBERS.

In your paper of May 13th, page 389, your correspondent, "A Lanarkshire Bee-keeper," says "Endeavour to keep down every scent of honey, syrup, or combs that is likely to attract bees, which incites robbers, and may spread disease."

A few days ago I was watching my bees as they flew in and out. I saw a considerable commotion at the entrance, and on looking closer I found fighting going on, and I felt sure something was wrong inside.

The hive is provided with two moveable shallow drawers placed at the bottom, and to draw out behind. The top one has a perforated zinc bottom, and serves the purpose of a floorboard, while the lower one is filled with dry peat moss. I drew out the lower drawer and found in one place a quantity of honey, and a good deal of broken comb in bits. This had all come from above. I fancied the robbers had got in and were doing much mischief. There were numbers of dead bees outside, and I expected to see many inside. I opened the hive, which was a frame one. I found a comb with a good deal of mouldy bee bread in it, while the surrounding cells were filled with honey. There was not a single dead bee on the floor, and the bees were busy pulling out the mouldy bee bread, and in doing this they had broken the cell sides, allowing the honey to fall down below. I helped the bees by removing the bee bread. I washed the perforated zinc, and put clean peat moss below, replaced the frame, and shut up the hive. Had this robbing been allowed to go on, increasing numbers of bees would have attempted to get in, and the result would have been very serious. Fortunately it was seen in time, and in twenty four hours the attempts to rob ceased altogether. There was no longer any smell of honey to tempt stranger bees.—A BEE-KEEPER.



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

*Monarda didyma* (A. J. L.).—Plants can be purchased at a moderate price from any nurseryman who makes a speciality of hardy plants.

*Peaches Falling* (Rugby).—You do not say when the trees were removed. If the root-action is not defective, or the crop too heavy, we can only attribute the evil to defective fertilisation. Are you certain that the horder is not dry at the bottom? and are you certain also that you have not been syringing too late in the afternoon and keeping the house closed too long in the morning? There is a mistake somewhere, but we cannot precisely indicate it from your description.

*Mites in Garden* (H. J. B.).—Your garden is infested with a species of millipede (*Julus*), which feeds on decaying matter, and is injurious to bulbs

and the roots of plants. A good liming when the ground is vacant would do good, and an application of lime water now would not do harm. You might also try the solution advised in reply to another correspondent.

*Auriculas* (J. L.).—Occasionally a plantlet will form on a flower stem. If you wish to establish the plant you cannot do better than carry out your suggestion of bending down the stem and pegging the growing part into a pot of sandy loam in a shady position, and if the soil be kept moist you will probably succeed in your object.

*Flowers for Market* (Blackwing).—We cannot advise anyone what particular flowers to grow for profit, as obviously so much depends on the soil, district, and local demand. Violets, Narcissus, Anemones, Wallflowers, Pinks, Carnations, Roses, Dahlias, Chrysanthemums, and Christmas Roses are found profitable by some cultivators in places where the plants grow well, and where there is no difficulty in disposing of the flowers.

*Weed-infested Ground* (A. F. Southport).—Your land is infested with one of the Equisetums, which is extremely troublesome when established. Its presence suggests that the soil needs draining, this with heavy applications of lime and hoeing regularly before the growths were half an inch above ground, having extirpated it from a field that was overrun with this pernicious weed.

*Caterpillars on Vines* (J. C.).—Your letter has arrived too late to permit of a close examination of the caterpillars at once. They are injurious. Try the mixture recommended to another correspondent for destroying grubs, reducing the petroleum, however, one-half and adding two ounces of quassia chips to the solution, strain through muslin and syringe the Vines soon enough in the evening to get dry before nightfall. If wet when the sun reaches them in the morning the leaves might be scorched.

*Maggots in Strawberry Beds* (W. E. B.).—The maggots shall be examined; in the meantime you might try the effect of a mixture of hellebore and petroleum in soapsuds. Dissolve 2 ozs. of soft soap and a little soda in 2 gallons of soft boiling water, also 2 ozs. of white hellebore powder, stirring in while still hot a wineglassful of petroleum, and try the effect of this on a small plot of ground or a few plants.

*Red Spider on Vines* (Merchant).—Are you sure it is the red spider that is attacking your Vines? It does not usually spread so soon in a moist atmosphere, and when the Vines are well supplied with water. We almost wish you had sent samples of the infested leaves. You may sulphur the pipes as you suggest, but we are by no means certain it will have the desired effect. We suspect you are keeping the house rather too close. Leave the top ventilators open half an inch or so all night, and increase the ventilation as soon as the temperature commences rising in the morning.

*Alternantheras* (Idem).—Take care your *Alternantheras* are well prepared; do not plant until the weather is quite warm, even if you wait till the middle of June; arrange so that the leaves nearly touch each other when the plants are placed in the beds, and give them warm water to start the plants into growth.

*Worms in Rose House—Mulching* (Puzzled).—The worms are not so injurious to Roses planted out as they are to those in pots, through their choking the drainage. The soil must be in a very moist state, air not entering freely by the surface. The worms may be brought to the surface, and they can then be cleared away by watering with a solution of corrosive sublimate at the rate of half an ounce dissolved in fifteen gallons of water. They must be kept from fowls, otherwise they will be poisoned. It would be preferable to remove most of the cow manure, and giving a dressing of quicklime, a peck per rod being sufficient, pointed in with a fork. This will do something to extirpate the worms, and greatly improve the soil by setting air into it.

*Management of Fruit Trees* (H. P.).—We cannot remember the page from which the citation was made—"close-prune spring growth, but only shorten midsummer growth." Our correspondent "J. E." can possibly do so, and we have no objection to publishing the information. The writer of that sentence has grown fruit trees that so far as we know have not been excelled for size, form, and productiveness by any others of the same age in the kingdom.

*Sowing Exhibition Peas* (A Beginner).—Sown at this time of year, Peas require about fourteen weeks, more or less according to the variety and the weather experienced, to come to perfection. By this it will be seen you must sow at once and not depend on a late sort, or the pods will not be fit to gather by the middle of August. *Ne Plus Ultra* is one of the best for late shows, but this you would not have time to grow, and your best plan will be to sow either *Telegraph* or *Stratagem*, giving these liberal treatment in the way of mulchings and waterings in order to keep them vigorous and free from mildew, to which they are very liable when sown so late in the season. The Dwarf Beans should be sown about eleven weeks before they are wanted, consequently these also should be sown at once. Both these and the Peas will germinate more quickly if soaked in water during the night prior to sowing.

*Constructing Glass Houses* (Constant Reader).—It would be preferable to have glass in front, the front wall being taken up 18 inches to 2 feet, and 2 feet 6 inches of front lights, and made to open the entire length of each house separately. The back wall for a lean-to house 12 feet wide will need to be, the front being 4 feet or 4 feet 6 inches, not less than 12 feet high, so as to allow of a proper pitch for the roof. We cannot undertake to get out quantities and give estimates of cost, but any horticultural builder would be pleased to give you a specification and estimate upon your sending a sketch and stating your requirements. The houses would no doubt be very useful, but without pits and frames they would be inadequate for a kitchen garden of four acres. Some pits and frames would be far more useful than the houses "for raising young stuff for the kitchen garden and bedding plants," and would not cost nearly so much money. The piping you have shown would be quite sufficient, but before anything is done it should be decided what the structures are really intended for, which we cannot learn from the data given.

*Vines Mildewed* (The Rev. G. S.).—The leaves enclosed to us are badly infested with mildew. There is no better remedy than dusting thoroughly with



flowers of sulphur in every part, the under as well as the upper side of the leaves, and repeating as necessary. Admit air more freely, especially in the early part of the day. It would be advantageous to apply a dressing to the border of two parts quicklime, one part dry wood ashes, and one part soot, thoroughly mixing, and applying to the border at the rate of a peck per rod (30½ square yards), and merely point it in with a fork. This may be repeated in about six weeks, and again in a similar period, but not after the Grapes begin to change colour for ripening,

**Plants for Stone Vases on Lawn (Aurora).**—You will find few better plants for the vases than *Yucca recurva*, its fine green foliage, beautifully recurring, and noble aspect, rendering it a striking object. It is hardy in all but very wet soils. Being in a vase well drained it would make thoroughly solidified growths, and no doubt prove perfectly hardy. *Eryngium pandanifolium* is a noble plant well suited for vases, having leaves about 3 feet in length, the flower stem rising to a height of sometimes 10 feet, bearing candelabra-like branching flower heads of a reddish violet colour. It also is hardy in well drained vases. *Chamærops Fortunei* is also quite hardy and makes a charming vase plant. One of the most graceful plants for vases is *Arundinaria Falconeri*, it requires abundant supplies of water in summer. *Aralia Sieboldi* is also very useful, and it succeeds admirably with a little protection in severe weather. All the *Acanthus* are stately in growth, having leathery and beautiful foliage and numerous flower spikes in summer. The best are *longifolius*, *hybridus*, *candelabrum*, and *spinosissimus*. Of plants that require protection from frost in winter the *Agaves* are very fine, particularly *A. americana*, and its variegated variety, *A. americana variegata*. *Agapanthus umbellatus* is good; it is hardy on rockwork, and would, no doubt, prove equally so in vases. Any of the plants could, of course, be grown in pots of suitable size for the vases, and plunged in them in summer, wintering in a greenhouse those of doubtful hardiness.

**Vine Leaves Scorched (Subscriber).**—The leaves are discoloured through the evaporation being in excess of the power of the roots to absorb moisture, and in consequence the tissues shrink and scorch. This is very common after a period of dull weather, when the tissues are thin and full of moisture, the change to bright weather find them unprepared for the change, and the leaves transpire more moisture than the roots transmit to them. The proper thing to do would be to shade, but this is inconvenient in the case of vineries, so the next best thing, and the one that finds most favour with growers, is to admit air very carefully in such weather, commencing early—just a little to cause a circulation, and increase it gradually with the advancing temperature, and so have the leaves dry before the sun acts powerfully upon them. Evaporation is thereby progressive, and the roots seconding the demand for nutriment are brought into comparatively increased action, and so are capable of meeting the demand when steady; but when air is not given until the temperature is high and the sun powerful, the evaporation is so great and sudden that the roots are unable to respond to the call made upon them, and in consequence the tissues of the leaves are dried up. Earlier ventilation and more moisture in the atmosphere obtained by damping available surfaces other than the foliage two or three times in the early part of the day, so as to keep the house cool, would probably have prevented the mischief. Indeed, early ventilation would have been all that is necessary to prevent the condition your Vine leaves exhibit. More and early air-giving ensure stouter textured leaves that are the least liable to be scorched.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*C. H. S.*)—We do not undertake to name varieties of florists' flowers, and such the vast majority of Roses are, but only species; and all we can say is the imperfect flower you have sent resembles *Isabella Sprunt*. (*H. K. V.*)—*Farfugium grande*. It requires liberal supplies of water during summer. (*T. R.*)—*Narcissus poeticus flore-pleno*. (*Reader*).—1, *Galium verum*; 2, *Alliaria officinalis*. (*Nac*).—1, *Hedysarum coronarium*; 2, *Pulmonaria officinalis*; 3, *Alyssum saxatile*; 4, *Doronicum pardalianches*; 5, *Caltha palustris flore-pleno*; 6, *Fritillaria Meleagris*.

#### COVENT GARDEN MARKET.—MAY 26TH.

BUSINESS well maintained, and prices without alteration.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	½ sieve	2 0 to 3 6	Peaches .. .. .	per doz.	6 0 to 20 0
„ Canadian ..	barrel	12 0 20 0	Pears, kitchen ..	dozen	0 0 0 0
Cobs, Kent ..	per 100 lbs.	27 6 30 0	„ dessert ..	dozen	0 0 0 0
Figs .. .. .	dozen	3 0 6 0	Pine Apples English ..	lb.	1 0 1 6
Grapes .. .. .	lb.	2 6 5 0	Plums .. .. .	½ sieve	0 0 0 0
Lemons .. .. .	case	2 6 4 0	St. Michael Pines ..	each	4 0 6 0
Melon .. .. .	each	3 0 5 0	Strawberries ..	per lb.	2 0 5 0
Oranges .. .. .	100	4 0 6 0			

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Articbokes ..	dozen	1 0 to 0 0	Lettuce .. ..	dozen	1 0 to 1 6
Asparagus ..	bundle	2 0 5 0	Mushrooms ..	punnet	0 6 1 0
Beans, Kidney ..	lb.	1 6 0 0	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red ..	dozen	1 0 2 0	Onions .. ..	bunch	0 3 0 0
Broccoli ..	bundle	0 0 0 0	Parsley ..	dozen bunches	2 0 3 0
Brussels Sprouts ..	½ sieve	0 0 0 0	Parsnips .. ..	dozen	1 0 2 0
Cabbage .. ..	dozen	3 0 4 0	Potatoes .. ..	cwt.	4 0 5 0
Capicums .. ..	100	1 6 2 0	„ Kidney ..	cwt.	4 0 5 0
Carrots .. ..	bunch	0 3 0 4	Rhubarb .. ..	bundle	0 2 0 0
Caniflowers ..	dozen	2 0 3 0	Salsafy .. ..	bundle	1 0 1 6
Celery .. ..	bundle	1 6 2 0	Scorzonera ..	bundle	1 6 0 0
Coleworts ..	dcz. bunches	2 0 4 0	Seakale .. ..	per basket	0 0 0 0
Cucumbers ..	each	0 3 0 6	Sballots .. ..	lb.	0 3 0 0
Endive .. ..	dozen	1 0 2 0	Spinach .. ..	bushel	3 0 4 0
Herbs .. ..	bunch	0 2 0 0	Tomatoes .. ..	lb.	1 0 1 6
Leeks .. ..	bunch	0 8 0 4	Turnips .. ..	bunch	0 4 0 6

##### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0 to 18 0	Ficus elastica ..	each	1 6 to 7 0
Arbor vitae (golden)	dozen	0 0 0 0	Fuchsia .. ..	per dozen	6 0 12 0
„ (common) ..	dozen	6 0 12 0	Foliage Plants, var.	each	2 0 10 0
Arum Lilies .. ..	dozen	9 0 18 0	Genistas .. ..	dozen	6 0 12 0
Azaleas .. ..	dozen	24 0 42 0	Hydrangea ..	per dozen	9 0 18 0
Bedding Plants, var.	doz.	1 0 2 0	Ivy Geraniums ..	per dozen	5 0 6 0
Begonias .. ..	dozen	6 0 9 0	Lilies of the Valley, in		
Calceolaria ..	per dozen	6 0 12 0	„ pots, per doz.	12 0	18 0
Cineraria .. ..	dozen	4 0 8 0	Lobelias .. ..	per dozen	4 0 6 0
Cyclamen .. ..	dozen	0 0 0 0	Marguerite Daisy ..	dozen	8 0 12 0
Cyperus .. ..	dozen	4 0 12 0	Mignonette ..	per dozen	5 0 8 0
Dracæna terminalis,	dozen	30 0 60 0	Musk .. ..	per dozen	2 0 4 0
„ viridis ..	dozen	12 0 24 0	Myrtles .. ..	dozen	6 0 12 0
Erica, various ..	dozen	12 0 24 0	Palms, in var. ..	each	2 6 21 0
Euonymus, in var.	dozen	6 0 18 0	Pelargoniums, scarlet,	doz.	3 0 6 0
Evergreens, in var.	dozen	6 0 24 0	Pelargoniums ..	per dozen	9 0 18 0
Ferns, in variety ..	dozen	4 0 18 0	Spiræa .. ..	dozen	6 0 12 0

##### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. 12 bunches	2 0 to 4 0		Marguerites .. 12 bunches	3 0 to 6 0	
Anemone .. doz. bunches	0 0 0 0		Mignonette .. 12 bunches	3 0 6 0	
Arum Lilies .. 12 blooms	4 0 6 0		Narcissus, various 12 bunches	2 0 6 0	
Azalea .. 12 sprays	0 6 1 0		„ white 12 blooms	0 6 1 0	
Bouvardias .. per bunch	0 6 1 0		Pelargoniums, per 12 trusses	0 9 1 0	
Camellias .. 12 blooms	1 6 4 0		„ scarlet, 12 trusses	0 4 0 8	
Carnations .. 12 blooms	1 0 3 0		Pæonies, various 12 blooms	0 6 0 9	
Chrysanthemums 12 blooms	0 0 0 0		Roses (indoor), per dozen	1 0 3 0	
Cowslips .. doz. bunches	0 0 0 0		„ Tea .. .. dozen	0 9 2 0	
Cyclamen .. doz. blooms	0 0 0 0		„ red .. .. dozen	2 0 4 0	
Daffodils .. 12 bunches	1 6 6 0		Primroses, Yellow, dozen		
Epiphyllum .. doz. blooms	0 0 0 0		„ bunches .. ..	0 0 0 0	
Encharis .. per dozen	4 0 6 0		Primroses, Double White,		
Gardenias .. 12 blooms	1 0 3 0		„ dozen bunches ..	0 0 0 0	
Hellebore .. doz. blooms	0 0 0 0		Spiræa .. .. 12 sprays	0 6 1 0	
Hyacinths, Roman, 12 sprays	0 0 0 0		Stephanotis .. 12 sprays	2 0 3 0	
„ Dutch .. per box	0 0 0 0		Tropæolum .. 12 bunches	1 0 3 0	
Lapageria, white, 12 blooms	0 0 0 0		Tuberose .. 12 blooms	1 0 2 0	
Lapageria, red .. 12 blooms	1 0 2 0		Tulips .. .. dozen blooms	0 2 0 6	
Lilac .. .. per bunch	2 0 6 0		Violets .. .. 12 bunches	0 0 0 0	
Lilium longiflorum, 12 blms.	6 0 9 0		„ Czar, Fr., .. bunch	0 0 0 0	
Lily of the Valley, 12 sprays	0 4 0 9		Wallflower .. 12 bunches	2 0 4 0	



#### THE FUTURE OF FARMING.

SINCE writing our last article we have had to inspect and make a valuation of some property which has recently fallen in to an estate under our care. Of this property one farm was to us an object of curiosity and interest, from the fact its having been in the hands of the tenant for twenty years, and during the whole of the time it had been farmed strictly according to the four-course shift. Finding the depression press heavily upon him, the tenant after due consideration of ways and means came to the conclusion that the only remedy was a reduction of the rent of the farm to 10s. an acre. At the time of making this demand his landlord was old and in failing health, so the reduction was granted by him in order to avoid trouble. We mention this case as showing what in the opinion of the ordinary tenant farmer is the proper remedy for the agricultural depression—a sacrifice by the landlord of fifty to sixty per cent. of his income. So far as the farmer was concerned he had only to obtain this enormous concession and to keep on farming strictly on the old lines, which in his opinion were not capable of improvement. After careful inspection we had to report clean land, tolerably well drained, with crops of an uniform degree of medium excellence, the usual proportion of Wheat, Barley, Beans, Peas, a few Oats, a layer of Clover, another of Trefoil, a Mangold field, a field held in reserve for Swedes and White Turnips, and the inevitable long fallow.

Now in common fairness we are bound to inquire if this is all that is possible for the future of farming; nay, we may claim to have shown already that it is possible for the farmer to do much more with the land than he has hitherto managed to do. But he cannot do so unless he confines his efforts well within the scope of his means. He must rather ascertain how much he may put into the land with advantage than how little. The weak points in this particular farm were the small proportion of grass to arable land, no sheep, long fallows, ordinary cultivation generally. Grass land, to begin with, involves very little labour either with men or horses,



and it may certainly be said of ordinary grass land that the returns are proportionate. Yet we have never seen an ordinary meadow that was not capable of improvement, and we have had to deal with much poor grass land in our own practice. Here is a case in point. Some fifteen years ago we had to divide a park into two parts with a wire fence—one part to be kept for hay and grazing, and the other only for grazing. Now the whole of this pasture was very poor, yet annual dressings of manure soon effected an improvement in the hay pasture, the hay crop being generally good, and the aftermath abundant. At first farmyard manure was used, then came the manure dealers' special mixture of artificial manure, affording results about equal to those obtained by the use of farmyard manure; this was followed by Professor Jamieson's mixture, each sort of manure being obtained separately and the mixing done at the farm, and it was owing to the remarkable effect of this home-mixed manure upon this as well as other pastures that we first called attention to it in these articles. Subsequent results were even more satisfactory, for there was an annual improvement in the hay crop, and last year the crop was fully twice as much in bulk as it had ever been before. The contrast between the hay pasture and that devoted altogether to grazing was remarkable; the one yielding heavy crops of hay, an aftermath for cows till October, and grazing for sheep till the middle of February, the other a tolerably abundant supply of food for cattle and sheep in summer and early autumn, but the growth was always late in spring, and at the best in summer it was altogether inferior to the hay grass, simply because it had no manure but the excrement of the animals grazing upon it.

The subject is so important that we must give another example before leaving it. By careful selection of seed and high cultivation of the land Mr. Faunce de Laune has made new permanent pasture so productive that it will carry ten sheep to an acre. Let us see what this means. Taking the wool at 6 lbs. per fleece we have:—

60 lbs. at 10d.	..	..	..	..	..	£	s.	d.
Ten sheep at 50s.	..	..	..	..	..	25	0	0
						27	10	0
Per contra—Rent and taxes	..	..	..	..	..	2	5	0
Manure	..	..	..	..	..	1	3	0
Labour	..	..	..	..	..	1	0	0
						4	8	0
Balance	..	..	..	..	..	£23	2	0

From this heavy balance we should have to deduct the value of the sheep at the beginning of the year and allow a slight margin for probable losses, but we should then be able to show a very satisfactory balance-sheet, even if we had to make a farther deduction for dry food, against which, however, we ought to be able to show a higher return than 50s. per head for well-bred sheep. We do not forget that many a farmer will say that his land is too wet to carry sheep in winter. In point of fact we have a farm in hand of some 330 acres where this proves to be the case; but we do not despair of making the land so sound by drains and careful cultivation as to be able to keep a flock there.

No doubt the laying down land to permanent pasture cannot be undertaken upon a large scale by farmers generally, but all risk could be avoided by doing a few acres year by year till the farm had its fair proportion of grass land. It is because the work is undertaken by incompetent men that results so frequently prove unsatisfactory. To the use of pure seed carefully selected, and judicious cultivation, we must add subsequent management of the pasture, for without it failure is inevitable. With enough sound pasture we are able then to have our flock at hand for folding purposes upon any of the arable land crops where folding is desirable to impart a fresh store of fertility to the soil, and instead of leaving bare fallows for the whole of the summer let us get them clean early in the year, and either

sow roots or green crops for ploughing in, and so turn the land to account either to provide a store of cattle food for winter or to lay up a store of fertility in itself for the future.

(To be continued.)

#### WORK ON THE HOME FARM.

Swede sowing has been done for the main crop, and the soil has been prepared in two ways for the seed. Where Rye had been eaten off by sheep in folds the land was ploughed, broken up by heavy harrows, bearing in this locality the name of duck's foot harrows; a heavy roller was then used to crnsh the soil, home-mixed chemical manure sown, light harrows passed twice over the field and the seed drilled at the rate of 3 lbs. an acre. Bastard fallow land had furrows made with double-breasted ploughs, farmyard and chemical manure applied, and the land ridged precisely as if for Mangolds. The chemical manure used per acre is three-quarters cwt. nitrate of potash, half cwt. nitrate of soda, and 2½ cwt. steamed bone flour, 2½ cwt. ground coprolite, procured separately and mixed at the farm a few days before being used. Coprolite is invariably received in an excellent condition of fineness, but we have had some difficulty about bone flour. We, however, were so fortunate as to procure our supplies from a manure company whose manager is an intelligent man and clever chemist; and upon it being explained to him that it is the minute division of the particles of steamed bone flour that imparts a special value to it, he at once offered to supply us as per sample at an additional charge of 5s. per ton for extra grinding, and we were quite willing to pay so reasonable a demand. Every effort is being made to keep down weeds in corn crops, especially Thistles and Charlock. Winter Tares, too, have had the hoes passed between the rows to cut down a heavy crop of Thistles. The Tares are now growing freely, and this useful crop will be quite ready for the ewes and lambs when they come off the Rye Grass. Wet weather set in just as they began the Rye Grass, and they did not make clean work of it for a few days. There was, however, no falling off in condition, for they had plenty of lamb food, and Mangolds with the Rye Grass. This sound wholesome food checked any tendency to scour, and glad are we to say that flock is clean, healthy and almost free from foot rot. We never allow a flock affected by foot rot to go near a sound flock, for this troublesome complaint is so infectious that it can hardly ever be entirely got rid of. The ploughs are following the folds closely upon the Rye Grass, as we are anxious to have another green crop ready by August for early tugging. To have a crop of early lambs the tups must be with the flock quite by the second week in August, and the ewes must be well fed and in good condition then to insure success. Stick to the sheep, say we again and again. Do not be frightened by reports about importations from the Colonies; depend upon it there is still "money" in sheep-keeping, and "golden hoofs" still leave their mark upon the land.

SEEDS AT EDINBURGH AND LIVERPOOL.—At the Liverpool International Exhibition and at Edinburgh Messrs. Sutton & Sons, Reading, are represented by an attractive display setting forth the several branches of their business. The upper portion of the stand, divided into seven equal sections, is arranged in a most artistic fashion. The centre is occupied by a collection of models of agricultural roots from nature, representing all the leading varieties of Messrs. Sutton's introductions during the past thirty years, while the sections on either side are taken up by specimens of special export boxes of seeds, illustrating the new process invented by the Reading firm. Arranged in glass cases immediately below the seven sections just alluded to are some beautiful models of various vegetables, fruits, &c., executed at Reading from real specimens; while beneath these is the collection of natural grasses.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		Rain
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1886.	Inches.	deg.	deg.	S.E.	deg.	deg.	deg.	deg.	deg.	In.
May.										
Sunday .....	29.932	49.1	48.2	S.E.	48.3	54.4	42.8	60.7	33.5	0.311
Monday .....	29.816	52.9	52.3	S.E.	48.8	59.4	48.9	77.4	47.7	0.016
Tuesday .....	29.762	59.7	54.3	S.E.	49.8	68.6	52.3	114.2	50.8	—
Wednesday ..	30.011	52.8	43.3	S.E.	50.8	62.4	45.9	81.1	33.6	0.043
Thursday ....	29.875	59.9	56.2	S.E.	50.5	65.6	49.0	93.8	42.8	0.136
Friday .....	30.139	60.0	58.5	S.E.	51.2	68.8	46.7	111.8	40.7	0.402
Saturday .....	30.142	59.3	55.0	N.	52.4	67.1	51.0	93.2	50.3	0.497
	29.954	56.2	53.3		50.3	63.8	48.1	91.2	43.9	1.405

#### REMARKS.

16th.—Wet day, but cleared up towards evening.  
 17th.—Wet till 10 A.M.; generally dull afterwards.  
 18th.—Fine, bright, and pleasant, with southerly gale.  
 19th.—Dull early, and wet till noon.  
 20th.—Warm and dull, with heavy showers between 1 and 2 P.M.; fine after.  
 21st.—Very fine day, with dull evening.  
 22nd.—Sharp thunderstorm in W. from 3.45 to 4.45 A.M. Very heavy rain from 4.8 to 4.10 A.M., 0.12 inch falling in those two minutes. Rather oppressive all day.  
 Warmer than last week and rain again above the average. Much dull weather has kept the range of temperature less than usual at this season.—G. J. SYMONS.





## COMING EVENTS

3	TH	Linnean Society at 8 P.M.
4	F	
5	S	
6	SUN	SUNDAY AFTER ASCENSION.
7	M	Royal Geographical Society at 8.30 P.M.
8	TU	Royal Horticultural Society—Committees at 11 A.M. Orchid Show.
9	W	

## GROUPS OF PLANTS.

## FERNS AND ORCHIDS.

**L**ARGE specimen plants of all kinds do not seem to be increasing in numbers for exhibition, and many provincial societies now find it difficult to secure a good competition in such classes. For some time the demand has been increasing for small or medium-size plants that can be conveniently and quickly grown in ordinary houses, and which can be usefully employed in decoration. The giant specimens that were such favourites at one time are still admired as examples of cultural skill, but it is only in a few establishments that the requisite time and labour can be devoted to them. They occupy considerable space and usually require houses specially appropriated to them, and except in large conservatories or winter gardens where they can be allowed plenty of room, they have a crowded appearance that is far from pleasing. Small plants, on the other hand, are useful for many purposes. They can be had in large numbers and great variety, and they can be inspected in their houses with some satisfaction. The greater demand for the decoration of rooms with plants, and the large quantities of flowers needed for cutting, have also had some effect upon this alteration of taste, but it is an undoubted fact that the popularity of large specimen plants is declining.

This has been recognised by the majority of horticultural societies, and one result has been that more classes have been devoted to groups at the principal shows throughout the country. At some exhibitions, tastefully arranged collections of plants now constitute the chief attraction, where a few years ago the competition was confined to two or three exhibitors, or there was no class specially provided for them. This advance must be regarded as a decided improvement, for such classes are advantageous in many ways. They enable a greater number of gardeners or amateurs to compete, they permit the exhibitors to show at the same time their skill in cultivation and their taste in arrangement, and they form a most effective portion of any exhibition. At the chief provincial displays like those at York and Manchester such groups are invariably admired by the visitors as much as, and sometimes more than, any other part of the show; they are less tiring than the long formal rows of plants on stages or the boxes of cut blooms frequently presented to the public. There is another point which serves to render groups popular with exhibitors, and that is the cost of carriage is much less than for the huge plants entered in what are termed "the great prize classes," for sufficient plants for an ordinary sized group can be packed in a cart or small van. It is not, therefore, surprising that with all these points in their favour groups of plants have received more encouragement at exhibitions of late years.

It is usually stipulated that groups in competition should comprise flowering and fine-foliage plants, the proportion of each being left to the taste of the exhibitor; in a few cases, however, classes have been provided for foliage plants alone

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with excellent results. This can be done with the best effect at large shows where adequate encouragement can be given to flowering plants as well, as otherwise the general appearance of an exhibition would not be sufficiently bright, but with a due proportion of floral colours a few groups of foliage plants are most refreshing, and serve as an admirable foil to the brighter hues. One of the best innovations of this kind is that which has become popular with some exhibitors at the Brighton and other shows on the south coast—namely, groups of Ferns arranged for effect. The experiment proved very successful and gave immense satisfaction to all the visitors, for several cultivators admirably proved what beautiful displays can be provided by employing such plants alone. In habit, form of fronds, and shade of green, the Ferns are extremely varied; and by the exercise of some little taste in forming an undulating surface to work upon, with a few mounds to increase the diversity and a careful choice of material, a group of Ferns can be rendered a charming addition to any floral gathering.

Quite recently another form of grouping has attracted attention and is one that is likely to advance very rapidly in public favour, and that is the arrangement of Orchids with Ferns. The cultivators of Orchids have increased considerably in the last ten years, and much larger numbers of these plants are now grown than has ever been the case before. It is quite reasonable, therefore, that they should have due provision made for them at exhibitions. This has been done for some time by forming classes for a certain number of specimens, prizes of substantial value being usually offered, but this has been found to be insufficient. Those amateurs or others who possess large plants can command the prizes at will, and the number of competitors is correspondingly diminished. In addition to prizes for the "specimens," it has been found that the best way to increase the number of exhibitors is to give those a chance of success who have only small plants to contribute, and who would on that account be deterred from entering the ordinary classes. To meet this difficulty several societies have offered prizes for groups of Orchids arranged for effect with Ferns and Palms, and the results so far have been highly encouraging. At Birmingham a beautiful effect was produced by the judicious employment of foliage plants, chiefly Ferns. At the Crystal Palace recently several pretty groups were arranged in a similar way; and the Royal Horticultural Society is offering prizes at the Liverpool Show which may be expected to bring an equally satisfactory competition. Orchids are admirably adapted for grouping. The majority are extremely graceful, they are varied in forms and colours, and altogether they are scarcely equalled by any other flowering plants for this purpose. The London nurserymen have repeatedly proved the truth of this in their displays of Orchids, and it is recognised and acted upon in every amateur's collection of Orchids. Plants of medium size can be much more effectively employed in such groups than the large specimens, and thus all growers can compete with a prospect of success depending chiefly upon their taste in arrangement.

Many other provincial and local societies might well give attention to this matter, as by providing classes for groups of Ferns or Orchids, or a combination of the two, they are not likely to lessen the interest of any other portion of their show, and they may add features of much beauty and importance. —L. C.

## TOMATO CULTURE IN THE OPEN AIR.

THERE is no more popular vegetable at the present time than the Tomato. Not many years ago its culture was wholly confined to glass houses and large gardens. I can remember a rough red variety being grown in a duke's garden a quarter of a century ago, and I do not think it was to be found in another part of that county; but now they are to be found in almost every parish, and as fine crops are often produced by a keen amateur or enthusiastic cottager as in the largest of gardens. It is not often we hear of the Tomato by the name of Love Apple now. When

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it was grown chiefly for ornament this was a very appropriate name, but now when they are eagerly consumed uncooked as a salad and cooked in many ways pet names are dropped, and they are regarded as a commercial commodity of great value. It is astonishing the price they command in the market. We never knew them to be less than 6d. per lb., and we have seen them at 3s. and 4s. per lb. Their culture would, I am sure, pay equally as well as Tobacco or any other crop, and I am rather surprised that small garden owners have not turned their attention to growing them for profit. If they pay anyone to grow them under glass early in the season at 2s., 3s., or 4s. per lb., they would pay equally well or better at 6d. per lb. from the open throughout the autumn. Were I a grower of plants for sale I would advertise young Tomato plants by the thousand at this season. There are many who would gladly grow them, but raising the plants to have them a good size at this time is a matter they cannot accomplish without the aid of glass.

One year I had a quantity of Tomato plants left over. I advertised these and they were all sold in less than a week, which indicated to me how anxious many were to secure plants ready for putting out and grow Tomatoes. Carter's Green Gage is a yellow-fruited variety. It bears heavily and does exceedingly well in the open. Indeed it never fails to produce a satisfactory crop, and it is a great favourite with all who have grown it. Shy-fruited varieties should never be tried in the open. Laxton's open air variety is also excellent and is a sure bearer of useful fruit. One of the main points to insure success is to have good plants to begin with. The first week in June is an excellent time to plant, and if the plants are 18 inches or 20 inches high then, well hardened off and robust, there is not the slightest danger of the crop failing. Such plants would be in bloom before June was out, and they would begin ripening fruit in August, and continue bearing until frost cut them down. We always grow a quantity of early Tomatoes under glass, but from August onwards we depend wholly on our open-air plants, and we have never been disappointed. They must have a good position. They will not succeed in the shade. A warm sunny aspect suits them admirably. We have often seen them do well as standard plants tied to stakes in warm spots, but if the shelter and support of a wall or wood fence can be given them they will be all the better for it. We put a plant here and there on our kitchen garden fruit wall wherever we can find space; but some of the cottagers and farmers in our district who have no walls round their gardens put a few out on the front of their houses or against any fence that may be there, and the results are always encouraging. Experienced cultivators often grow them well in very poor soil, as they secure dwarf short-jointed plants in this and feed them well with liquid manure after the crop is formed; but the inexperienced will find their plants do best by giving them rich soil and getting them to make robust growth, which will bear fruit freely without more attention than restricting the growths and tying in the shoots. Each plant should have one barrowload or more of good soil placed at the roots, and in planting the roots should be put well down, as many roots are sent forth from the stem, and when part of this is buried it increases the feeders. Should the plants be somewhat delicate at first they should be protected for a few nights when first put out, and as soon as they begin growing select two of the most promising growths, tie them in or nail them up as leaders and pinch off every other shoot. This is very important, as when the plants form a mass of shoots they never fruit well. Throughout the whole of the period of their growth they should be examined at least once a week to remove the side shoots and tie in the two leaders. Where there is plenty of space the plant may be allowed to take the form of a fan-shaped tree, but avoid crowding by all means, and where a heavy crop and good returns are the only consideration we would adopt the restricted system of growth.

Ordinary plants will begin to fruit at 2 feet from the ground, and they will produce closely formed clusters all the way up afterwards. When a large quantity of fruit has been formed liquid manure should be given two or three times weekly, and this may be applied as long as the weather is warm and the fruit is swelling freely. There is another good way of treating the plants before planting them out. This is to pot them into 6 inch or 8 inch pots, allow them to make a good leading shoot or two, which should be tied to a stake, and they will form a quantity of fruit before they are 3 feet in height. They are well treated under glass until about the middle of June, when they are planted out with the fruit attached and as this swells up and ripens early fresh quantities are produced in rapid succession. This is an excellent plan to adopt in cold districts where open-air plants would not be likely to succeed until midsummer or later.—A KITCHEN GARDENER.

So rapidly has the acquired taste for Tomatoes increased during the last few years, that in order to meet the great demand for this wholesome vegetable-fruit its cultivation has been considerably extended in both private and market gardens. As we grow Tomatoes somewhat largely, and I think I may say successfully, and as our mode of treatment is somewhat different from that practised by many, a few remarks may be acceptable. Instead of placing out plants from 9 to 12 inches high, as most growers are accustomed to do towards the end of May or early in June, we place large well established plants which have been grown for that purpose in pots ranging from 7 to 9 inches in diameter. We also utilise the best of the plants which have ripened their crops of fruit in the forcing houses in May after they have been properly hardened, as the larger the plants are at planting out time the sooner will they yield gatherings of fruit. Frequently our plants have set their fruits before they are planted out, thereby ensuring far greater supplies of fruit being gathered from plants growing out of doors than could otherwise be secured. This is a most important detail to be observed. The most suitable aspects for Tomato plants to occupy are south and west walls or fences. They may also be grown, but not successfully, against an east wall or fence.

**PLANTING.**—Assuming that the soil is moist at the roots, turn the plants out of the pots, removing the drainage, and in the event of the roots being matted round the soil, as is sure to be the case with plants which have been forced, loosen them a little round the outside with a pointed stick before planting. Prepare a soil consisting of three parts of light loam and one of short dung well mixed, pressing it firmly about the balls of earth and roots. This being done, secure the shoots at 9 or 10 inches to the wall or fence with nails and shreds, allowing sufficient room in the latter for the development of the individual shoots. Single-stemmed plants should be planted at the same distance apart as that recommended for the shoots on the wall. Then give sufficient water at the roots to settle the soil about them, and in the event of bright sunshine prevailing at the time, hang mats over the plants for a few days until the roots have pushed into the new soil. After which, the more sun the plants are exposed to the more fruit they will bear, if their treatment be good.

**THINNING AND STOPPING SHOOTS AND LEAVES.**—Upon the manner in which this operation is carried out depends success or failure, as anything approaching overcrowding of the shoots and leaves will assuredly lead to the latter. Therefore all lateral growths should be pinched at one joint and the compound leaves at two or three joints from their bases, so as to prevent both shoots and leaves touching one another, as well as to expose the fruit to the full influence of the sun. The secondary growths should be stopped at one joint above each cluster of fruit. The slight check thus given to the flow of sap will cause the fruit to set more quickly and better than would otherwise be the case. If fine large fruits are desired in preference to medium-sized ones the clusters should be thinned, leaving, of course, the best-shaped and most even fruits for the crop.

**WATERING.**—Although Tomato plants, when treated as indicated above, yield the best possible results out of doors during a hot summer, it must not therefore be assumed that they like to be kept dry at the roots, the case being quite the reverse of this, and the plants swelling their fruit will be greatly benefited by an occasional soaking of liquid manure. A warm and somewhat dry atmosphere is most congenial to the requirements of the Tomato. There need be no apprehension of plants growing under the favourable conditions set forth above being attacked by the Tomato disease, which, in my opinion, is the result of the conditions under which the plants have been grown—viz., a cool humid atmosphere and an overcrowding of shoots and leaves, the latter being the most potent factor of disease—a disease which in the case of plants grown under glass and against sunny walls out of doors is quite avoidable in both cases, though if the summer should be a wet and cold one, the plants out of doors would very likely exhibit symptoms of discoloration in the leaves and shoots, and I have known a dusting of lime and soot over the affected parts prevent this spreading.—A. W. WARD.

#### RICHARDIAS.

THESE plants are now in every garden, everybody knows how to grow them, and, as a matter of course, nobody wants to learn anything about them. I am very doubtful indeed if everybody who grows Richardias is acquainted with their capabilities, or has succeeded in securing to their plants the treatment which best suits them. It is one of the characteristics of present-day gardening that certain flowers are expected at any given day throughout the year, and, with us at least, Richardias



have got into that section of all-the-year-round plants. They require a certain treatment to ensure such a supply, but it is a treatment which exactly suits them, and therefore worth making a note of. It may also be said that it is a treatment which pays, as a grower (perhaps the largest in the north) who follows it not only places a larger quantity of spathes in the market at special seasons than any other, but keeps up a constant supply from the same set of plants.

The present time is most suitable for beginning the treatment of which I write. It is at least a dozen years since I first wrote of it, and with slight though necessary modifications it is the same now as then. Our plan, then, is first to keep the plants under glass long enough to save the foliage from damage. They cannot be put out of doors with any degree of safety here before the last week in May; if windy weather prevails, even later. In the ordinary acceptation of the word, *Richardias* will not bear "hardening off." I do not suppose any plant likes it, but this one will not put up with it. The foliage under the process becomes flaccid, brown, withered, and decays. The way *Richardias* like to be "hardened off" is to wait until the weather is warm, keep the plants on the dry side for a day or two, and well aired, and on a fine morning remove to a warm sheltered shady corner where they can stand for a week, and the hardening process will be completed alike to the gratification of the plant and its owner. The summer treatment is most simple. Our plants are flowered mostly in 10 and 11-inch pots, and at this time they are turned out of their pots, each plant divided so as to have one or two growths, saving in the process all the roots possible, and planting the divided pieces at once. If the ground is moist and the weather dull no water is given; if dry, a good soaking is allowed each piece, a strong stake put to the plant and the leaves tied thereto, and that, with the exception of hoeing, comprises the summer treatment. Spathes are produced before the plants have been long in their new quarters, and meanwhile a supply is kept up by a few pot plants which are not needed for stock. Now I think it is a mistake to supply the plants with either much manure or much water. The man of my acquaintance who produces the finest foliage, the largest plants, and the smallest quantity of bloom is the one who goes in for manure trenches and floodings of water.

About the middle of September we lift. The roots are crammed into the pots, and unfilled spaces filled with strong loam. Until the middle of October the plants remain out of doors; at that time they are housed, and are kept in a temperature of about 55°, growing and flowering throughout the winter. Any that are wanted to open quickly are placed for a week, more or less, in a stove temperature. Fortnightly applications of manure are given, and the plants are never allowed to go dry. Each spathe as it opens is cut, and if not wanted is kept in a cool dry room. With the cut end resting on wet moss they keep perfectly good for three weeks, and will stand a week or ten days in vases after that. We employ the spathes constantly for church vases, occasionally for room vases as a change from other flowers. They look best in large glasses among a setting of their own foliage, half a dozen or more spathes, according to the size of the glass, making a very effective vase. For dinner table decoration it may not be known that *Richardia* spathes give a very massive effect if used with judgment. In all these cases medium-sized spathes are better than large ones; indeed, we often use opening spathes for some purposes. Plants are also valued for room decoration. For this purpose we have had very neat little plants from seed, and flowered in 6-inch pots.—B.

### WATERING INSIDE VINE BORDERS.

WHAT I may relate on this subject, whether in opposition or corroborative of others' experience, will be advanced without any reference to what has recently been written, my sole aim is to be instructive to those who may need information. I have long held the opinion that the generation of gardeners who carried the sway when many of us were in our infancy were too fond of hard and fast lines, were too stereotyped in their notions and practices in fact. The temperatures must be kept almost to one figure, the composts must consist of certain quantities of certain materials, water was given at certain periods and in exact quantities, and yet in spite of all this exactitude I think I may safely say their productions would scarcely equal what are now grown by less precise and less particular gardeners of the present day. Times have changed materially even in my short career, and there are but few of us who can imitate the expensive practices of our forefathers. Fewer men are kept and more work has to be done, hence the revolution in our proceedings.

My practice with inside fruit borders is much the same as that in the case of plants rooting in pots. When they want

water they as a rule receive it, and this no matter whether before, during, or after the stoning process. When the borders are partially exhausted of fertility they receive liquid manure, it may be before the Vines or trees are started, or perhaps much later on, not a little depending upon the availability of the manure supply. It may be asked, How are we to know when a border needs water? I answer, Easily enough. It is true we cannot rattle the pot with our knuckles or with our feet if we are too stout or too indolent to stoop, but we can examine the soil with a pointed stake and to a good depth without injuring many roots. In every case, whether with pot plants or borders, it is a common practice to let them get too dry before watering, and then double the quantity of water that would have sufficed a few days previously would not do the work nearly so well. A little and often is much preferable and more efficacious than extra large quantities given occasionally, and which when reduced to figures is enough to frighten a beginner. Probably the average-sized inside Vine border would be about 24 feet by 12 feet, and if this was not allowed to get very dry 180 gallons of water would be ample at a time. This may seem a small quantity to some, but it is as much as is oftentimes available, and more than this, or say enough, for much to run through the border, would only be a waste of water, besides a certain loss of fertility carried away from the border.

Visitors here of late have been very curious to know what I was doing with several large bottles suspended under some early Vines. Some have expressed the opinion, after my explanation, that the idea is ingenious, while others, so I have since heard, seem to think it is a pity I have not something better to amuse myself with. I do not now propose to state my motives for rooting the Vines in bottles filled with various materials, but principally water, though I must admit I am disappointed with the results. At the same time, if I failed in one respect I have yet gained a few "wrinkles." What surprises me most is the amount of water absorbed from the bottles during a bright day. Although the bottles are not half filled with the roots, owing to the fact of their being twice killed, yet as much as a quart of water has been taken up from one by the Vines in the course of twenty-four hours. This was during an exceptionally clear night and day, when the evaporation from the foliage was most to be expected. During a fairly clear day about a pint is the quantity wasted, while on dull days very little is taken up, and scarcely any during the night. We may reasonably assume that much the same process is going on with the roots in the border, and therefore that waterings should not be given at stated intervals, but should be regulated according to the weather experienced and the state of the border, some borders being more absorbent and consequently do not become dry so quickly as others.

Although Vine roots form and thrive surprisingly well in water, it may come as a revelation that anything in the shape of manure kills them. This I was not prepared for, as I had hoped for very different things. Bones, charcoal, and oystershells may be added in any quantity, but quite a small pinch of sulphate of ammonia and kainit killed them in a short time. Lime also in small quantities did not suit them, and, what is more surprising, by no means strong farmyard liquid manure added to some clear water already in the bottle, although it did not actually kill the roots it could be seen that the points were all damaged and very little water afterwards left the bottle. It may be the roots formed in a border are not nearly so delicate as those in water, but whether this is so or not I am still of opinion that they may be very easily injured by an overdose of liquid manure. Doubtless there is much less danger in applying liquid manure to borders than to pot plants even, as it gets filtered, much remaining on the surface, and which is not always so well filled with roots as it might well be. Much also runs through the border into the drainpipes, this being especially the case when such heavy waterings that are thought necessary by some are given. I have seen Vines apparently at a standstill for a week after receiving liquid manure—it happened this season, in fact—and as this is about the time it takes for fresh roots to be formed in my bottles, it seems feasible enough that we had injured the roots with too much ammonia and potash. The lesson to be learnt from this is, that we should apply liquid manure also in small quantities and often, or we shall perhaps do more harm than good with it. What has our friend "Thinker" to say to the foregoing?—W. IGGULDEN.

### RUSHING INTO PRINT.

It is perhaps scarcely worth while taking up your space and my time to reply to "Head Gardener's" letter at page 419, but as it may please him to have his communication noticed by someone, you will permit me to state that I fail to identify myself with the incidents he refers



to, inasmuch as all contributions of mine to the gardening papers respecting my own productions or those of others have been strictly accurate and free from exaggeration. Neither have I been reproved by any head gardener I served under for any single line I have written. Your correspondent is evidently chagrined at some reporting and perhaps jealous of the approval of any work except his own. The circumstances, we are told, occurred many years ago, yet "Head Gardener" has not opened the sluices of his displeasure until now. It is more than twenty years since I was foreman in a lord's garden, and I fear that anything I wrote then, good or bad, would not be calculated to make such an impression as to be remembered for such a length of time. Gardeners at the age of twenty-two or twenty-three rarely figure as "graphic" and impressive writers in the Press, and I should only be too delighted to be one of the few "W. P. R.'s" of "Head Gardener's" stamp, but must be content to remain—YOUR W. P. R.

## CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 375.)

### SUMMER TREATMENT.

THE most important point in the summer treatment of Chrysanthemums is regularity in attending to their various wants, strict and prompt attention to the smallest matters at the proper time being necessary to ultimate success. When the plants are finally potted and placed in their summer quarters, great care should be exercised in supplying them with water. A good soaking having been given to them after potting, no more water will be required for several days, except the weather be hot and dry. Applying water to the roots when not necessary is a mistake, as this tends to make the soil sodden; therefore wait until the soil is nearly dry before giving more at this stage. A gentle syringing after a hot dry day is of great advantage to the plants. The roots run more freely into the new soil when it is moderately moist than when heavily charged with moisture. As the roots progress and the sun gains power the plants require water twice each day, and a few of them possibly three times. The soil in each pot should be carefully examined before water is given; rapping the pots with the knuckles is the best guide, and if the same person attends to them always he soon becomes accustomed to the sound of the pots, and at once knows when to give water with benefit. It is wise in very hot weather to examine the plants three times each day, say early in the morning, again about midday, and once more in the evening. Where rain water can be had it should be used in preference to any other; but where it comes direct from wells or water companies' pipes in a cold state, as is often the case near towns, means should be taken to expose it to the sun and air some time previous to using. Washing soda, used at the rate of  $\frac{1}{4}$  lb. to 36 gallons of water, previously dissolving the soda in hot water, softens it if allowed to stand twenty-four hours, and also acts as a stimulant to the plants. The notes on watering apply to the use of clear water only. The application of stimulants will be dealt with in a special article. Syringing the plants is a great promoter of healthy growth, and a preventive of insects. Syringing is best done in the afternoon or evening of a hot day. When the plants are numerous and placed in rows the garden engine is the best instrument to use, and the water should be directed to the foliage with some force by going between two rows of plants and returning in the opposite direction; the plants then receive a thorough washing which is far better than a light sprinkling with the hand syringe. In cold sunless weather the plants should not be syringed or mildew may be encouraged, and it ought as far as possible to be averted. Incessant attention should be paid to tying the shoots to their supports as fast as they grow; neglect in this may cause much disappointment at a later period, the points of the shoots being so succulent are very liable to be broken by wind, heavy rains, and other causes, thus the loss of these branches reduces the chances of success to a minimum. When the branches which are intended to produce the flowers are selected remove all the other side growths promptly as they appear. Allowing superfluous branches to remain weakens those that are intended to produce flowers, therefore pay strict attention to the removal of excessive growths; it is much easier to take them off when young than when they get hard.

### INSECTS AND DISEASES—REMEDIES.

Chrysanthemums are not troubled with many forms of disease or insect pests, like some other kinds of plants, owing probably to their hardiness; still they are liable to be attacked by a few enemies, but if these are attacked in turn as soon as detected, and treated as I will endeavour to explain, they will not cause serious trouble by their presence. Green fly is one of the most persistent and troublesome of insects; it attacks the points of the shoots in all stages of their growth, more particularly when the plants are young, often before the cuttings are taken from the old plants, and if a remedy is not applied the young leaves and points of the shoots

are soon crippled. The best way to clean the cuttings from green fly before inserting them is to rub with the thumb and finger the parts affected in water. This does no harm to the cutting, and the enemy is washed away. Gishurst compound used according to the instructions printed on the boxes is sometimes used, but is liable to injure the tender leaves. Fumigating the house with tobacco paper is of course quite certain to kill the fly, but it is not always worth while to fumigate a house, as perhaps a few of the plants only are infested. Tobacco powder sprinkled on the points of the shoots is the best way to remove green fly when the plants are established in pots, a good syringing afterwards cleanses them from both fly and powder. Black fly is sometimes troublesome to the young leaves on the points of the branches; it may be destroyed by dipping the parts affected in a weak solution of tobacco water, using a saucer to contain the liquid. Care should be exercised in bending the young branches, as they are very liable to snap off if bent too quickly in covering the leaves with the liquid. A leaf-mining maggot, similar to that attacking Celery, is often very troublesome in the spring and during June, when the plants are from 3 feet to 4 feet high. The maggot can easily be seen under the skin of the leaves, where it secretes itself and quickly destroys the tissues, giving a serious check to the plant. Hand-picking persistently followed is the only efficacious remedy I know; either squeeze the part of the leaf where the maggot is seen, or pick them out with the point of a knife; neglect this and the plants may be spoiled. Another enemy, like the Rose maggot, often causes much anxiety and loss by destroying the points of the shoots in August and September, when the flower buds are forming. Incessantly watching for and destroying the grubs by hand is the only means to remove these depredators. Earwigs are also troublesome when the flower buds are formed. Their favourite hiding place is among the young unfolded leaves. The tender flower buds are, however, their favourite morsels, and these they spoil by eating away the centre; but they cause far more trouble when the blooms are expanding, as they eat the florets, thus rendering the flowers shapeless. Search for them after dark with the aid of a lantern, and destroy them then, as they are not easily seen during the daytime.

Mildew is the worst pest the Chrysanthemum grower has to contend with. It makes its appearance in small spots on the leaves at any stage of growth, more particularly in damp sunless weather towards the end of summer. Brown sulphur, owing to its colour, being the least objectionable sprinkled on the affected leaves is the best remedy. This parasite attacks the under parts of the leaves, to which it is almost impossible to apply sulphur in a dry state; recourse must then be had to a liquid application. The plants are often badly infested with mildew when they are ready for housing. They should not be removed into their final position until the pest is eradicated. This is best done by laying the plants on their sides and syringing them, thoroughly wetting every part with the following mixture:—Place 2 lbs. of sulphur and 2 lbs. lime, which has not been slaked, in ten quarts of water, and boil for twenty minutes. For syringing on the plants use two wineglassfuls of the mixture to four gallons of clean cold water. A syringe with the jet affixed, causing a single stream, is the best method of applying the liquid; by placing the forefinger over the orifice the liquid can be directed upwards and spread over the plant where required. If a slight discoloration of the leaves follows from the sediment of the mixture this will not be injurious, but it can be removed if desired by a vigorous washing with clean water.

The only disease which affects Chrysanthemums to my knowledge is the following:—In the months of August and September after three or four successive rainy days the leaves from the soil to about three parts of the way up the plants turn black. I do not know any name for this form of disease, but I have noted that where soil of a retentive character is used the disease is the strongest, thus suggesting that sluggish or defective root-action may be a cause of the evil; therefore the only preventive I can suggest is to prepare the soil for the final potting in the manner previously described, thus reducing the chances of the disease appearing to a minimum. If no other course is left to the cultivator but to use a retentive soil it should not be rammed very firmly in potting, or the water will not pass away so quickly as is desirable. I have seen plants denuded of three parts of their foliage in a few days by this disease, and receiving a serious check in consequence.

### SPORTS AND FIXING THEM.

Chrysanthemums have a tendency to sport into various colours. Many of these when "fixed" are improvements upon older kinds. Some persons speak disparagingly of this method of obtaining new varieties, but I fail to see why they are not as good as those produced from seed. Many new forms of the Incurved section are procured in this manner, notably Lord Alcester. This I regard as one of the best varieties in existence, if not quite the best of the Incurved family, as it will produce more first-class blooms on a



given number of plants than any other which I am acquainted with. It originated as a sport from Golden Empress in the hands of an ex-policeman in Somersetshire, who was fortunate in fixing the sport and distributing it amongst horticulturists. The present general system of growing Chrysanthemums for the production of large blooms is not favourable for increasing the number of new varieties by sports, as the side shoots are taken off the plants as they grow, and it is from these side shoots, when they are allowed to develop into flowers that the largest number of sports appear. The best method of fixing sports and obtaining a stock of plants of the sported variety is the following:—If one branch only produces the new bloom cut away all other branches, and remove the dead bloom from the "sport," but not the leaves; turn the plant out of the pot and lay it on its side in a propagating house or frame which has bottom heat, and cover the roots and branches with cocoa-nut fibre, burying the buds in the axil, but not the leaves. This induces shoots to break at each joint, and when these are long enough take them off as a cutting with a sharp knife, but do not cut too low, as that might prevent other young growths springing from the base. Insert the cuttings singly in small pots, using sandy soil, place in a propagating case with bottom heat, and attend to carefully with water and shade. Plants which have been thus established should produce flowers of the new variety. Some growers cut the stem into lengths, but these do not strike freely, and a very small number of plants can be raised in this manner as compared to the system of inducing new growth to start from the buds. It is advisable to strike all cuttings growing from the base of the plant carefully, marking them, as some may perfect flowers of the sported variety.—E. MOLYNEUX.

#### GARDENERS AND PREMIUMS.

It requires two to make a bargain, and it is evident that there are plenty of men willing to pay a premium of £5 or £10 for one or two years. A gardener, however energetic and pushing he may be, cannot do the whole work required in a large establishment, and therefore must have assistance. Young men are eager to enter large establishments, especially if they have a name, for they naturally conclude that gardening is "better done" in such places than in those of a smaller size. They offer premiums, or their friends do, and are in consequence taken on when there is a vacancy in preference to men who will not pay. That this is a fact I know by my own experience. I have been offered premiums many times from young men, gardeners, and from the friends of young men. This spring no less than three such offers have been made me without being sought.

When I took charge of these gardens over eight years ago four men were paying premiums of £10 each for two years, two having paid nearly the full amount, one about three parts, and the other half. Whether these men would have been willing to pay me the remainder I do not know, but, knowing the circumstances of their case I announced that premiums would not be taken from them and that they could all remain, provided they conducted themselves properly and did their work. Since those men left I could have filled every vacant place with premium men had I desired to do so.

There is another side to this question, and that is, that there are gardeners who will not engage men unless they are prepared to pay the premium they require for a certain length of time. At the expiration of that time they are sent to some nursery to take their chance for a place in another garden, or if they are not willing to enter a nursery they are soon treated coolly. This is not mere fancy, but a fact that can be proved. Frequently the premium system in gardens has commenced with taking one or two improvers who may have perhaps served a term only as boys in some second-rate garden, and they or their friends are anxious to give them a good start, hence a premium is willingly paid to establish them in a garden of some pretension. I see but little harm in this if it went no further; but some gardeners, like other individuals outside our profession, do not possess the virtue of unselfishness, and therefore are only satisfied when the whole of the young men under them are paying premiums. I have known this system extend to the foreman, so that room for a fresh one could be made by elevating the oldest hand to that position until his time for paying expired.

Such a system cannot be too strongly condemned, for it not only tells materially against the young men, but also the garden in which they are employed. It is worse for the latter, in fact both, when the foreman is one of themselves instead of being a thoroughly competent person. The person who benefits by this practice—which is not uncommon—is the one who receives the money, and this is more apparent than real, for his reputation, as well as that of the garden, soon suffers, and in the end he is the loser. Premium men are in most cases less experienced than could be obtained for the wages they receive. The consequence is that they are a source of annoyance to the foreman and render his duties threefold more difficult, for he in a large measure is responsible to the chief for all their actions. The majority of them have to be shown or told every little thing, or blunders perhaps of a serious nature occur, which often is the case. Frequently when they are told and shown, mistakes are made, not wilfully, but through inexperience. In a large garden where the whole of the men are incompetent to do the work required of them, the foreman, however good he may be, has a very trying and by no means a desirable

post. On him falls in no small degree the task of teaching, and the daily difficulties that arise through lack of experienced men to assist him in satisfactorily carrying out the many and varied duties entrusted to him. Under such circumstances the reward for labour done is paid to the wrong person, for instead of the chief receiving the premiums I think the foreman is more entitled to them. Young men that pay premiums generally receive as much wages per week as experienced journeymen can be obtained for. The latter will not pay premiums, for they are in demand in plenty of gardens where the gardener, rather than enrich himself by a few pounds annually, is anxious that his own reputation should not suffer as well as that of the garden. If an employer allows his gardener to take premiums to make up his wages, and men are willing to pay them, I do not see that anybody else has anything to do with the matter; but employers had much better pay their gardeners an extra £10 or more a year, as the case may be, for in return they would be repaid more than twofold.

It may be argued by the advocates of premiums that men appreciate more highly the knowledge gained if they pay for it. Perhaps they do, I will admit this point for the sake of argument, but it must be remembered that gardening is not learned in two years. If men appreciate that for which they pay, and pay only for one or two years' service in some good garden, they have not much to appreciate. There is another side; perhaps they lose more than they learn. When a man knows that he is secure for a certain period of time he invariably makes but little if any progress, and at the end of the term is no better than at the beginning. There is a tendency in all of us to grow indifferent, and I know nothing more certain to produce it with many men than security for a time. It causes carelessness and after negligence, from which they are only roused by some individual who will have the work done properly, quickly, and intelligently. They realise then that it is necessary for them to push, or they will be dismissed, and this is the turning point in the lives of many, and in others the end of their gardening career. Do not let me be misunderstood, for all men who pay premiums are not careless and negligent, for some are sharp, persevering, intelligent, pushing young men. I have had some of the indifferent and slothful as well as some of the latter from premium establishments. Security for two years through paying a premium has this tendency, for it is certain that gardeners will not discharge them unless they become intolerable until the amount agreed upon has been paid.

It has been said there would be an insufficiency of young men in the gardening profession if it were not for these apprentice establishments. Such is not the case, for there is work in nearly all gardens of any size for one or more boys, and there is no difficulty in obtaining them, and most of them now are better educated than the present race of gardeners were when they were boys. It is uncharitable to keep these boys back because they are not in a position to pay premiums. Many of them in consequence are destined to be labourers, for there is no other prospect for them without someone kindly takes them by the hand and pushes them forward to give them a start. I thoroughly believe there would be less second-rate young men wanting places to-day if the premium system was abolished.

The question of dress has been raised, but many a young man might be termed "dressy" when he enters a fresh garden, for there are plenty of young men who turn out their old things and enter upon their new duties in a highly respectable manner, perhaps it may be with a new suit of clothes. I have had several who have done so, and further, I have in the past done the same myself. It invariably follows that a man who is clean and neat in his dress is equally so in his work. I like to see young men respectfully dressed, and should be one of the last to interfere with a man on this point. Gardeners are not justified in dictating to a man what they are to wear and what they are not to wear. Young as well as head gardeners have a perfect right to liberty of opinion on this subject, and as long as the former keep themselves sufficiently respectable, according to the work they have to do, that is all we have any right to expect. If a young man were engaged for table and house decoration, I should certainly expect him to be better dressed than the man engaged to dig and work in the kitchen garden. I am no advocate for rings, or the wearing of jewellery of any description, and would not wear a ring if I had one given me. Other people, however, have a perfect right to please themselves, and if a man desires to wear a ring, and he does the work required, I fail to see what right a gardener has to complain. The employment of gloves when stoking need not be discussed at any length. I have provided strong leather gloves for my men ever since I have had the charge of a garden, and had them found for me previous to that, and highly appreciated the thoughtfulness of the gardeners who did so. It is impossible for a man to keep his hands clean without their aid. Stoking and watering for a week means two or three weeks' labour before the hands are thoroughly clean again. This is not all, for many men's hands crack badly through being wet and then half roasted in stoking large boilers, watering, and other inside work, and then stoking is very trying to the hands, however soft the skin may be to commence with. Gloves are not very expensive, as they last a good length of time if re-stretched by a sadler previous to being used.—A LOOKER-ON.

"OUTSIDE FOREMAN" appears to have introduced a very much more pleasant and practical tone into this subject. If the majority of young men could be treated and worthily make progress as sketched out, perhaps less might be said against this rather doubtful practice. Your correspondent says, first of all, "I cannot see why a premium should not be paid by an apprentice in our profession just the same as by an apprentice in any other trade and profession?" I am inclined to think, if this



formed an important argument, the right of taking premiums would soon disappear. In the first place, it is very questionable if the term apprentice applies to 5 per cent. of gardeners; there is seldom any legal tie. And, again, in most cases it is not the youths that are first entering gardens who pay premiums, but young men who have already served some years, and for improvement seek a beneficial change, and when he will certainly have a full share in all duties. This being so, may I ask where "An Outside Foreman" sees the resemblance between gardening and other trades? Singularly enough establishments which deal most in premiums are often in the habit of paying the lowest wages. I could enumerate a few rather glaring shortcomings of premium-payers, but have no desire to slight young men.

In my opinion, however, receiving premiums is not a good practice. If a young man wishes to learn nothing can prevent his doing so; and, on the other hand, if he is slothful he will never be a competent gardener, and the sooner he retires to some other calling the better for all.—**LATHYRUS.**

### STRAWBERRIES.

As it is proposed to have a Strawberry election to prove which are the most useful sorts to grow, I will give my evidence. I have grown upwards of a hundred varieties, one-half of these being seedlings. Owing to ill health I have lost sight of half a dozen extra good seedlings, and in this climate I cannot grow successfully earlier sorts than Garibaldi, nor later ones than Dr. Hogg or Elton Pine. I have a seedling of the British Queen type, coloured to the very point, and very hardy. I have tried Dr. Roden's Early Prolific and others, but it appears we are too far north for the successful cultivation of his seedlings. The soil is light, resting upon a bed of gravel at a depth of from 1 to 2 feet. Roses will not thrive in it, but Strawberries do well, only they must not be kept long in the same place. As annuals they do extra well. Care must be taken, too, that a new plantation be not formed earlier than six years after a plot has been dug.

Garibaldi, which, with me, is distinct from, and superior to, Viscomtesse Hericart de Thury, I place first as a prolific, strongly constituted, free grower, good sized, and of a Keens' Seedling flavoured fruit.

Almost as early, but having much larger fruit, and lasting longer, is Dr. Livingstone. This is a seedling from Admiral Dundas, not unlike President, but it is rather firmer, has a brighter appearance when growing, but does not colour so well on the side farthest from the sun, is fine flavoured, and produces more fruit than any other variety I have grown. For marketing purposes I am told it stands first in Glasgow. The Editor of this Journal reported favourably of this Strawberry some fifteen or more years since. So did Mr. Barron. There is no Strawberry I have seen that will produce a crop beneath trees as this one does. It appears to be at home in all soils and situations. If I were confined to one sort it would be this one. If two, Garibaldi and Dr. Livingstone. For a firm, fine-formed, and good flavoured Strawberry, Sir Joseph Paxton, but with me it is uncertain after the first year, and many plants come blind. Were this not so it would be a great favourite.

As Dr. Livingstone lasts so long, I go from it to the later sorts. Dr. Hogg is a handsome variety, and should be in every collection. Duke of Edinburgh does not grow well with me, and as flavour is the first thing in a Strawberry, I discard it and James Veitch as being defective.

Cockscomb at one time grew large berries and was well flavoured and very prolific, but after a while refused to grow. Although coarse-looking, it is an interesting fruit, and I would not exclude it from a collection.

Frogmore Late Pine did not do well here, being too tender, but otherwise a handsome well-flavoured fruit. Elton Pine, although soft and a little acid for dessert, is good for preserving, is very prolific; with large, well-formed fruit. It does well here.

Although these are my selection, I would advise for their great prolificness and earliness some Black Princes. If grown right it is not at all a small berry, and has a peculiar piquant flavour strictly its own. Then where Keens' Seedling can be had true, it, in addition to its fine flavour, seems to be an everlasting Strawberry. Near me there is a bed of them still doing good service that has not been disturbed for thirty-five years, and yet it does well, but it is the true sort.—**W. THOMSON, Auchinraith, N.B.**

### REVIEW OF BOOK.

*Orchids: Their Structure, History, and Culture (Illustrated).* Second Edition. By LEWIS CASTLE. 171, Fleet Street.

THE still-increasing demand for Orchids is exemplified in the numerous recent publications devoted to their culture. By one post I received the excellent treatise alluded to above, and the "Reichenbachia," by Mr. Fred. Sander. The last, a magnificent serial monthly publication, containing four coloured plates, which no doubt every Orchid grower will subscribe for. In Mr. Castle's book no less than forty-one publications on Orchids are enumerated, but as the author justly observes, many of them are far too expensive for those who have slender purses. We cannot be all so careless of money as the gentleman described by a celebrated American author who "handed his servant a bill without looking at it, and pocketed the change without counting it." Nevertheless, I make hold to say that hundreds of young gardeners, and old ones too, spend more money on tobacco, and waste more time and money in public houses, than would be required to purchase the "Reichenbachia," and many other expensive and useful books. I make no special charge against gardeners that might not

be made against any other class. The only remark I make about Mr. Castle's book in respect of its price is that it is too cheap. It costs but a shilling, and half of that sum must have been spent on the binding. The book itself contains 104 closely printed pages brimful of most useful and suggestive information, gleaned, as the author states, from "many years' observation." The book opens with a chapter on "floral fashion," and some interesting information is given there and elsewhere about the prices of Orchids. Rare and beautiful Orchids will always command a high price, but, as the author remarks, a nice little collection may be purchased for £5; and, to confirm this, I may say a gentleman told me last week he paid £5 for his first lot of Orchids, forty plants, and sold half of one of them subsequently for 20 guineas. Rare varieties of Orchids, worth 150 guineas, have been purchased in the usual way for half-a-crown; but the large proportion of Orchid fanciers comprising an ever-increasing number of busy city men, grow Orchids for nothing but love of their plants; they are fascinated by the quaint forms, endless variety, and sweet perfume of the lovely flowers.

A chapter is devoted to a description of Orchid flowers, which will be of the utmost value to young gardeners and amateurs; the descriptive remarks are illustrated by woodcuts of the pollen masses, stigma, column, labellum, nectary, ovary, &c. A study of this chapter and that on "Fertilisation" would enable anyone to commence hybridisation without going any further for information. The cultural remarks are very trustworthy, and may be followed by the most nervous cultivator without fear. The use of manures is alluded to, but to be applied with caution, "or much injury will result, and beginners had better abstain from dangerous experiments until they gain more knowledge of Orchid culture." Mr. Borwick's Orchids at Higham Hill, Walthamstow, are alluded to as being much improved by the use of Jensen's fish manure, and used with caution excellent results have followed. In all cases when this or any other manure is used it is best to proceed by taking a set of say twelve plants all alike, use the manure upon six of them and none at all upon the other six, grow them together and watch the result for twelve months. Another hint may be useful. A gentleman read somewhere that he was to use so much guano sprinkled on the surface of the soil in a 15-inch pot. This seemed plain enough, but he measured round a 5-inch pot, gave his plant an over-dose and killed it. Having seen Mr. Borwick's plants, I can say that his examples of *Lycaste Skinneri* grown in pure leaf mould and "fished," as he calls it, have grown with amazing vigour, the pseudo-bulbs formed last year being in many cases quite three times as large as those formed the year previously. Other specimens, such as *Maxillaria grandiflora*, were equally remarkable. Mr. Castle's chapter on culture and the use of manures should be read by every Orchid grower. This being the only cheap and at the same time reliable work on Orchid culture, it will doubtless soon be out of print. For my own part I am puzzled beyond measure to understand how such cheap books can be sold at a profit to the publishers. I fancy some of them must be in the case of a caterer of shilling dinners for a great exhibition, who at last found himself in the bankruptcy court, and it came out in evidence that the average cost of the dinners was one shilling and three halfpence, and he had trusted that the large number of dinners required would pay in the end.

I ought to add that the frontispiece is a life-like portrait of the President of the Royal Horticultural Society, Sir Trevor Lawrence, Bart, M.P., and the conclusion is an Orchidist's Directory and a capital index.—**JAS. DOUGLAS, Great Gearys, Ilford.**

### GLOXINIAS FOR AUTUMN FLOWERING.

THE system recommended by Mr. Udale, page 394, of planting out Gloxinias in frames so as to have a good supply of blooms with a small amount of labour and expense, is well worth a trial by all who grow these plants in large numbers for cutting. Gloxinias can also be had in flower in abundance during the autumn months if treated in the following manner. About the middle of June place some Gloxinia leaves in small pots, using a light compost, such as leaf mould and a good sprinkling of sand, plunge in a steady bottom heat, keep a moist atmosphere in the house or pit, but not too moist, or the leaves will damp instead of making roots freely. When they have rooted, transfer them into 4-inch pots. Use for this potting two parts good fibry loam, one of leaf mould, and one of sand, also adding some well-decayed cow manure if it is to be obtained, not made fine, but in lumps about the size of a walnut. After potting, place them again in a brisk bottom heat, keeping plenty of moisture around them. Be careful in watering till the roots have taken possession of the new soil, then, every third watering or so, give weak liquid manure, and, if so treated, good results may be anticipated, and would serve to keep up a succession of bloom. Some flowers produced by plants grown in the manner stated were in the hand bouquet which was awarded the first prize at one of the leading Chrysanthemum exhibitions held last November.—**G. GARNER, Amberwood, Hants.**

### VIOLET FLORIBUNDA

IN perusing the interesting article on Violets in your last week's issue, I was rather surprised to find floribunda classed amongst the spring-blooming varieties. This variety I raised from seed (The Giant) a few years ago, and if there be a perpetual-blooming Violet I consider floribunda is the one. It is always in flower by August, and you may often find a few flowers on it even earlier than that. It is certainly the freest bloomer I know and as early as any, and although not quite so



large as Victoria Regina, it will bear a dozen blooms when the latter would bear one, and as sweet as any. I fancy your correspondent has not grown the true one, as he terms it a small flower.—G. W. BOOTHBY, *Louth*.

### PLASHING HEDGES.

ARTICLES were published in our columns a few weeks ago on the management of hedges, and a "Bailiff and Gardener" advocated, on page 333, the method of plashing which is successfully practised in some districts. We have since had inquiries for details of the method, and have pleasure in publishing the following letter with sketches supplied by a gentleman in Lincolnshire. Mr. Beulah, Manby House, Raven-thorpe, writes:—

"My daughter has sketched a portion of hedge newly plashed, fig. 81; it is exactly like the portion she copied. As a guide to readers she has also sketched a piece of two years' growth since plashing from nature and



Fig. 81.—Hedge Plashing.

trimmed last autumn for the first time (fig. 82). Our usual practice here with hedges, old and new, is to plash or lay them every few years; even after hedges are closely trimmed for several years it is a good practice to let them grow up (wild, as it were) for a few more and then plash them. New quickset hedges should also be plashed after about eight years' wild growth. When done by a skilful workman they never fail to make good fences. Large old fences sometimes require a rope to lower the tree-like branches down, and when these are well done and planted in and out they make a fence sufficient to prevent any domestic animal, or even a lion, from passing through. We let them grow two years before siding up which we do in the form of an inverted V, or wedge shape.

"The cost varies from 1s. 6d. per chain of 22 yards for young hedges to 4s. for old bullock fences. We have down here about a mile, 80 chains yearly for the past four years, and some of the earlier are now very good sheep fences. When the land is grazed by beasts a dead fence called a "Beard" is placed 3 to 4 feet from the side of the hedge when there is no



Fig. 82.—Hedge Two Years Plashed.

ditch. As to the latter, we have them always kept open whether there is water or not to be taken off the land, and a good workman when he makes a good bank, fresh soiling the bottom of the hedge which has been plashed, makes, to my mind, one of the best-looking jobs about a farm."

The growths are often too numerous for laying down, and several are chopped out close to the ground, the young growths which start from the stumps contributing to the closeness of the fence at the base. When these plashed hedges are properly trimmed they are not only strong but as ornamental as could be produced by any other system of management. The laid branches or "ribs" of the hedge are soon entirely hidden by the growths. As was stated by a "Bailiff and Gardener," binders are often

run along the top of the stakes, which increase the rigidity at the first and impart a neat appearance.

### THOUGHTS ON CURRENT TOPICS.

IT is very easy to think too fast, or at least to record impressions too hastily. For once at least I appear to have exercised a little caution in waiting to hear the other side of the question in respect to the alleged extortion of money from a young man under circumstances that have been described. It would also appear that while it is easy to "rush into print" hastily there is the possibility of waiting too long for evidence, and thus find the case closed. I am debarred, then, from saying what I think on the particular case that has agitated the minds of correspondents, but not from referring to the subject of "premiums generally." I do not, however, imagine that the jury has lost much through my absence from the witness box, for the moment I saw the intimation of a "strong petition" announced I made up my mind to say very little on the subject in dispute, feeling it would be more seemly to wait the issue of events than to enter largely into the discussion of a question under those circumstances.

ON the general subject, then, of the payment of premiums by young gardeners one or two thoughts naturally arise. There is clearly the possibility of a young man paying £5, or any other sum, "down," for the privilege of working in a certain garden, then after a few weeks proving his incompetency for the duties pertaining to his charge. 1, Would a gardener be justified in keeping such a man? 2, If he did keep him, would he not be spending his employer's money in the form of wages for services not satisfactorily rendered? 3, If, as a faithful steward to his master, he discharged the man, would he be justified in keeping the £5? 4, If a man is sent away as incompetent, on what grounds would a gardener be justified in stopping any portion of the pupil's wages for the period of his admitted incompetency? 5, Is it legal for any portion of a man's wages to be deducted at all in the absence of any covenant signed by the gardener and sanctioned by his master (whose money is diverted) and by the man who agrees to its diversion? These appear to me to be pertinent, proper, and not unimportant questions directly bearing on a subject in which three parties are directly interested, all of which have an inalienable right to equal justice.

A VERY excellent letter, as it appears to me, on the general subject of premiums was published on page 398, from "A Gardener to an Earl." He does not say whether he receives premiums or not, but if he does it is clear he feels morally compelled to personally interest himself in the training and welfare of his pupils, and feels bound to advance them in life, or in other words, to give "value for money received." That is as it should be, and in such cases there can be scarcely any objections to the practice, provided pupils are worthy and fairly earn the money that is paid by their masters; but in some cases there is reason to suppose that whatever is taught the young men is taught by their foremen, who, I think, do not, as a rule, share in the teacher's "pay."

THE system of premiums for learning gardening will die out, just as premiums for apprentices in trades are dying rapidly. I am no advocate for "snuffing out," as that is attended with injury to individuals, and gradual and natural changes are, I think, the safer and fairer for all. I see "Observer" rather contemplates a retrograde movement, and appears to be considering the advisability of the imposition of premiums on the ground that young men are not sufficiently "grateful" for the teaching they receive "gratis." I rather suspect, however, that gratitude is an inherent virtue, and I think the man who is not grateful for what is given him will not be extra grateful for what he pays for. I have learned a little of gardening through paying, a little without, and I do not feel more grateful to the men who shared in my small wages than to those who did not, while I was taught much more by the latter than by the former. If "Observer" has experienced benefit from paying, and his gratitude has been deepened towards those who have received his money, he has then grounds for his projected change. I have none, and if I have not taken a penny from a gardener, it is not because I have not had opportunities for "making" several £5 notes. However, this is just a question of feeling, and I am willing to believe that "Observer's" motives in accepting premiums, if he conclude to accept them, are just as good as my own.

AN "Outside Foreman" contributes a sensible letter on page 417. He admits having had good value for his £10, and at the same time points out some of the evils attending the premium system. Paying money does not make able men. It opens the door to appointments, as in the instance cited, giving young men of sense an opportunity of becoming good gardeners; but "fops" innumerable have bought their way into positions, and their services were dispensed with as soon as possible, and thus the country has been flooded with failures, who pass as gardeners, to the prejudice of really able and accomplished men. It is readily granted that some of the best gardeners in the kingdom originally paid for their learning; but there are others just as good who paid no premiums. The custom can only be justified on the principle indicated by "A Gardener to an Earl," if then as regards the master's or wage-payer's interests, and it will die out—in fact is dying—for I know at the least half a dozen gardens where it has lapsed, and it is not likely to be



resumed. But I have said enough, and some others can have their "say" on the subject if they like.

SOME common-sense remarks on Asparagus appear on page 415, but neither of your correspondents tells us what I think not a few readers wish to know—namely, whether cutting the small growths known as "spray" as they spring up in the beds towards the end of April or early in May weakens the plants or the reverse. Some old and successful growers chop them all off till about the middle of May, while the younger school permit them to grow. Considering the matter philosophically this would appear the right course to adopt, but is it? What do Messrs. Iggliden, Muir, and others who may have tested the matter say? It is very certain that late cutting or clearing off every head as thick as a pencil till the end of June is injurious, and has permanently weakened many heds of Asparagus.

I READ with much pleasure Mr. Udale's excellent article (page 395) on planting out Gloxinias. I remember once seeing 50,000 planted out in frames, and I shall not soon forget the wonderful effect produced. They were seedlings raised in February, transplanted and grown in hoxes till June, then planted in light yet generous soil. The corms produced by these plants were much finer in the autumn than those produced by plants from the same batch grown in pots. I have tried the plan exactly as recommended by Mr. Udale, and in no other way have I produced such a supply of handsome flowers for cutting, with such little trouble. Gardeners and others having spare frames and partially exhausted hotbeds, also some sturdy young seedling Gloxinias, might do worse than follow the advice tendered on the page quoted.

IN the matter accompanying the beautiful figure of Dr. Duke's Odonoglossum on page 403, I find a few lines worthy of being brought into greater prominence. Here is the sentence:—"A point observed at The Glen, that is also studied in other establishments, is to have the floors of Orchid houses of earth, both the paths and beneath the stages, for a more steady supply of moisture is thus afforded than from brick, tile, and stone floors." There is more "in" that small paragraph than many persons imagine, otherwise we should not see so many smooth, poreless floors, even iron grating, where it could well be dispensed with in Orchid houses, forcing houses—indeed, in plant and fruit houses generally. Gravel paths neatly kept are the reverse of unsightly, and might with great advantage be found in numbers of supply or preparing houses in gardens. They are cheaper, and in every way better than smooth fancy floors, being much more conducive to the health of the occupants of the structures and as preventives of red spider and other pests that invariably establish themselves the soonest where there is no earth moisture. Architects' ranges and conservatories are too often great insect nurseries and plant death traps, a source of never-ending trouble to gardeners and a credit to nobody. If I were having Orchid houses or forcing houses erected and could have them paved with glazed tiles for nothing I should decline the proposal, knowing the gift would be dear in the end. Dry open stages over hot-water pipes, iron gratings, and smooth dry surfaces are inimical to the health of plants, Vinos, and trees, and ought to be dispensed with as far as possible in favour of a moisture-yielding base. It is the dry air in many structures that more than anything else prevents the healthy growth of Orchids and other plants. I am glad "L. C." incorporated that useful sentence in his interesting article. Descriptions of places should always, in my opinion, contain practical hints, as they mostly may do; then are they both agreeable and instructive.

ANOTHER example of the emhodiment of instruction with description is afforded on page 381, in connection with the apparently most effectively arranged and decidedly attractive winter garden there represented. It is observable, too, that the paths are of gravel, and scarcely a doubt can be entertained that if they were paved with smooth ornamental tiles and the plants arranged on stages that the effect would be less pleasing, at greater cost. Granting the trustworthiness of the young men and Mr. Sanders' good management, the health of the plants, and Rose on the roof, is in a great measure due to the earth moisture steadily rising from the heds and gravel paths. Dry air acting on the under sides of the leaves of most plants is unquestionably inimical, and I can never suppress a feeling of pity for gardeners who are in charge of high, dry, smooth, prim and polished architects' conservatories. Experienced horticultural builders can design and erect structures as ornate as is desired in which plants will thrive, and it is very deplorable to see so much money expended on buildings that do not, and cannot, satisfactorily answer the purpose for which they were erected, as designed by persons of great skill in their own line or profession, but who know little about the requirements of plants. Gardeners should be consulted in the erection of garden structures and the work carried out by horticultural builders if the requisite expenditure is to prove a satisfactory investment.

WHAT curious people there are in the world! That is what I thought when reading of someone "poking fun" at "D., Deal," for transferring his Lapagerias from pots to boxes. Some of the finest plants in the kingdom, excluding those planted in horders, are in boxes, in which, as a rule, Lapagerias grow better than in pots. A more equable temperature and root moisture can be maintained in the former. Given an abundance of drainage (charcoal), so that much water can be applied without souring the soil, a shaded rather than a sunny position, a rather firm yet springy compost of very fibrous peat mainly, and Lapagerias are bound to grow. The more water they receive, when established, provided the soil is sweet,

and the less sun in hot weather, the more luxuriant they are, and, like Orchids, they appear to grow as well in towns as in the purer air of rural districts. Mere descriptions of gardens without a suggestive hint are, to me, bald and profitless. One of your correspondents' "descriptive hints," given some years ago, and briefly repeated on page 396, enabled me to grow satisfactorily the "Flower of the Gods," *Disa grandiflora*. Gardeners and garden lovers want, and must have, something to read, but they like those narratives the best that have "something in them;" at least that is the opinion of—A THINKER.

### CULTURE OF THE HYDRANGEA.

IT is now some ten years since I first detailed in the *Journal of Horticulture* the mode of culture practised by the London market growers for producing Hydrangeas in 5-inch pots, with heads of bloom from 12 to 18 inches across, and as it differs somewhat from that detailed by "G. G., Hants," at page 408, I will describe it again, as it may benefit numerous younger readers.

In the early spring large plants of well-ripened wood are introduced into an intermediate temperature fully exposed to the light and air, so as to make the cuttings sturdy. These are taken off, not necessarily with a heel, when the cuttings are strong enough, the size selected being those which have about two pairs of large leaves and a plump terminal bud. The two undermost leaves are removed, and the cuttings inserted singly and firmly up to the second pair of leaves into thumb pots, the soil consisting of equal parts of leaf soil and loam, with a liberal sprinkling of sand. The cuttings must be well watered in and plunged in cocoa-nut fibre refuse under a close propagating frame or handlight in an intermediate house or a half-spent hotbed. If kept shaded and fairly moist they will soon form roots, when they should be stood out in the open part of the house, and be eventually removed to a cold frame before they make any top growth, the aim being to keep them dwarf and sturdy. After they are hardened and are fairly rooted, transfer them into 5 inch pots, the soil to consist of four parts turfy yellow loam, and one part each of leaf soil and well pulverised manure. Pot the plants firmly, and return them to the frame until the roots commence taking to the fresh soil, when they should be removed outside. The best position is on a bed of coal ashes fully exposed to the sun and air, which is an important point, to insure dwarf plants. Watering must be carefully attended to, as on no account must the soil be allowed to become dry. Stimulants must be avoided during the summer, as that would excite them into growth instead of forming a plump terminal bud, but a little soot water would be beneficial.

The plants must remain in the open air until frosts appear, which will cause them to lose their leaves, when they should be removed to a cold frame for the winter. Plants should be introduced into a light intermediate house early in March, and others at intervals so as to form a succession. Clear soft water must only be used until the flower buds appear, at which time stimulants must be applied so as to force the head of bloom to a large size. Dryness at the roots must be especially guarded against, as the pots would be filled with roots.

Large quantities of decorative plants may be grown in a simple manner if the work is well managed.—A. YOUNG.



A SELECTION of the best plants in the late PROFESSOR MORREN'S COLLECTION OF BROMELIADS AT LIEGE has been purchased for the Royal Gardens, Kew, and form an important addition to the already extensive collection of these interesting plants in that establishment.

— WE learn that MR. GEORGE NICHOLSON has been appointed Curator of the Royal Gardens, Kew, succeeding Mr. John Smith, who recently resigned after twenty-two years' service. Mr. G. Nicholson has assiduously performed the duties of Assistant-Curator for fourteen years, having been originally appointed clerk to the Curator in a competitive examination. Mr. W. Watson, foreman and propagator, succeeds Mr. Nicholson as Assistant-Curator, but retains charge of the indoor department, which has been under his superintendence for several years, during which time the collections have steadily improved.

— MESSRS. JAMES VEITCH & SONS are now sending out a distinct and handsome plant under the name of IMPATIENS EPISCOPI. It flowers with the same remarkable freedom as *I. Sultani*, but is of more compact habit, and the flowers are of a purplish-carmine colour.

— ONE of the best plant novelties of the present year is IMPATIENS HAWKERI, which will be shortly distributed by Mr. William Bull, Chelsea. It is like a magnified form of *I. Sultani*, but it is more robust in



habit, and the flowers exceed 2 inches in diameter. They are of a very deep carmine, almost vermilion colour, exceedingly bright, the centre being white surrounded by a ring of violet. The plant is a native of the South Sea Islands, where it was discovered by Lieutenant Hawker.

— A VERY handsome specimen of *ODONTOGLOSSUM VEXILLARIUM* is now flowering in the Orchid house at Great Gearies, Ilford. It is a *bona fide* single specimen grown from one rootstock, and bears forty-seven racemes, the total number of flowers being 289. This with several others has been grown on from small pieces in the past ten years, the plants being placed in the *Cattleya* house during winter and the cool house in summer, especial care being exercised to prevent their becoming dry at the roots.

— AS will be seen from an advertisement in another column MR. CHARLES HERRIN, who has been gardener at Chalfont Park, Gerrards Cross, for ten years, desires another situation. Mr. Herrin is well known as an exhibitor at Chrysanthemum and other shows, and has repeatedly proved his skill as a cultivator in close competitions with fruit and other productions.

— THREE new SEEDLING PHYLLOCACTUSES have recently flowered at Cromwell House, Croydon, all being most beautiful and distinct. They have been named respectively Mrs. Charles Major, Miss Dorothy Major, and Miss Mabel Major. The former is very large, of a brilliant rosy pink colour, with white filaments; the second pale rose, the inner petals rich purplish carmine, the filaments deep crimson; and the third bright scarlet outer petals, the inner petals of the same hue as that last referred to, the filaments bright rose. All are large and of fine form, and they make a desirable addition to the excellent collection of Cacti in Mr. Major's garden.

— THE INDIAN RHODODENDRONS in the same garden have been gorgeous; the plants—or rather trees—are growing in huge tubs, some under glass, others out of doors. A specimen of the lemon-scented Countess of Dalhousie has produced upwards of 1000 blooms, and another of the sweet-scented white variety, Princess Alice, bears nearly as many.

— A CORRESPONDENT, "W." writes:—"RIVINA HUMILIS forms a most attractive standard for a warm conservatory; when thus grown the long spikes with their load of scarlet berries droop gracefully over the other plants amongst which they are placed, and have a very pretty effect."

— THE first part of a magnificent new serial work on Orchids, entitled "REICHENBACHIA," is just to hand. It is by Mr. F. Sander, with "the assistance of scientific authorities," and is to be issued monthly with four coloured plates, either chromo-lithographs or hand-coloured. The present number is dedicated to the Queen, and contains plates of *Odontoglossum crispum*, *Cattleya labiata* Percivaliana, *Cypripedium Sanderianum*, and *Odontoglossum Rossi*, each 15½ inches wide by 21 inches deep, and admirably drawn and coloured. Except the *Cypripedium*, which is drawn by Mr. W. H. Fitch, they are all the productions of Mr. H. G. Moon, and the *Odontoglossum Rossi* is one of the most truthful yet artistic plates we have seen. A botanical description in Latin, accompanied by analytical drawings of the structure, is furnished by Professor Reichenbach with each plate, and some general remarks on history and culture are added in English, French, and German, which will greatly increase its value. It is published by F. Sander & Co., St. Alhans.

— MR. N. DAVIS, The Chrysanthemum Nurseries, Lilford Road, Camberwell, London, S.E., sends us the following:—"It has been suggested that the time has arrived when the valued services that MR. WILLIAM HOLMES has rendered to the National Chrysanthemum Society in his capacity of Hon. Secretary, should be acknowledged by presenting him with a testimonial worthy of the Society, and a Committee has been formed to carry out this object. They feel that the success of the Society is in a great measure due to the unwearied efforts of Mr. Holmes, and to the disinterested zeal at all times evinced by him on its behalf. They therefore feel justified in inviting all members, as well as others interested directly or indirectly, in the work of the Society, to allow their names to be put down as subscribers to the fund."

— A CORRESPONDENT sends us a photograph of *PHALÆNOPSIS SCHILLERIANA* which he says is "the finest plant in the country—at any rate the best I have seen. It belongs to Stephenson Clarke, Esq., Croydon Lodge, Croydon. It has two strong growths with thirteen

splendid leaves, some measuring 12 to 15 inches long, and from 4½ to 5½ inches wide, all being perfect and of great substance. This year it bore four strong flower spikes, 3½ to 4½ feet long, the whole carrying 180 flowers of the finest colour and form. The plant has been growing for some years in the roof of an ordinary plant stove, and I am of opinion with Mr. Carr, the gardener, that it has greatly benefited by the evaporation of ammonia from the waterings applied to *Eucharis*, *Crotons*, *Dracæna*, &c. I have often noticed *Phalænopses* doing much better in a house with such plants than in one exclusively devoted to them."

— IT is said that the BANANA TRADE, which has proved a splendid source of income to cultivators in Jamaica and Honduras, is about to be greatly extended. Demerara intends to send us large consignments by vessels especially fitted for the carriage of fruit; and in addition to Bananas we are to have Mangoes, Pine Apples, and other tropical fruit. A ready sale may be confidently predicted if only prices are moderate.

— MR. ABBEY refers as follows to GILBERT'S VICTORIA BROCCOLI:—"Heads of this Broccoli, cut on the 26th May, were large, very firm, close, and heavy. This is the most tender and best-flavoured Broccoli I have tasted, the flavour not being at all strong, but particularly Cauliflower-like and pleasant. It must prove a great acquisition."

— LIVERPOOL INTERNATIONAL EXHIBITION.—In addition to their fine display inside the Exhibition buildings, Messrs. Webb & Sons have successfully laid down numerous extensive lawns in the grounds outside, with their prize Grass seeds, and their splendid appearance—even at this early stage of growth, and after the recent unfavourable weather—was referred to by the *Liverpool Daily Post* of May 26th in the following terms:—"The most important attractions outside are to be found on the plateau, for the damp weather, though disadvantageous in other ways, is at least bringing the lawns to that point of verdure which they should assume in order to set off to the best advantage the beautiful flowers and shrubs which have been planted in various designs by emulative gardeners, and the beautiful rockeries, which are a triumph in themselves. The plots sown by Messrs. Webb of Stourbridge are doing their part nobly towards the object named, and fairly disproving the theory that green lawns can be more quickly formed out of sods than well-conditioned grass seeds. In this instance, at all events, the very opposite is the case, the grass looking beautifully fresh and green, while many portions of the ground which had a start of them by being carefully turfed among the first operations on the plateau are looking bare and brown." At the Bath and West of England Show, Bristol, Messrs. Webb & Sons also have an extensive display of flowers, *Gloxinias* and *Begonias* being very fine.

— MR. G. BOLAS sends us from Hopton flowers of *TROLLIUS FORTUNI*, which for richness of colour he remarks far outvies its companions *T. europæus* and *T. americanus*, and has, moreover, to him a remarkable Apricot scent. The rich Apricot colour is very apparent, but the perfume appears to have departed from the flowers in transit. They are highly attractive.

— MR. BOLAS also sends flowers of *DIPLACUS GLUTINOSUS* AND *ROSEA*, and observes—"I have a plant of each in 15-inch pots, measuring 4 feet from rim of pot, and 3 feet high, giving me an abundance of flowers for cutting. They last over a week perfectly fresh in water. Two glasses now filled with these flowers, with a few of the blue *Marguerite*, the old *Agathæa cœlestis*, and sprays of the noble *Spiræa Aruncus*, form a most delicate and pleasant combination. These old *Diplacuses* would form splendid exhibition plants for spring shows, flowering from the rim of the pot. The plants in question have not been potted for over two years, are turned out of doors all summer till frost sets in, and flower, more or less the whole time if allowed."

— A MONOGRAPHIC LIST OF ANTHURIUMS, by M. E. Bergman, gardener at Ferrières, France, has just been issued in the form of a pamphlet of fourteen pages. The notes originally appeared in the *Journal* of the "Société Nationale d'Horticulture," February, 1886, and has been reprinted from that work. The species are arranged alphabetically, 125 being enumerated with many varieties. Full descriptions are given of some of the leading species, with the native country, date of introduction, authorities for the names, and other particulars. Others are dismissed in a few words, and of some the native countries only are given. It would have improved the value of the list considerably if brief descriptions had been given of all. Sixteen varieties of *Anthurium Schertzerianum* are named. A few slight errors in nomenclature are noticeable, but the list will be found a useful one by many persons.



— PRIZES FOR WILD FLOWERS.—In part 4 of the re-issue of Messrs. Cassell's "Familiar Wild Flowers," it is announced that a series of five prizes, amounting to £50, will be given for the best collections of wild flowers, consisting of specimens of those figured in the first volume (parts 1-20) of the work named. Collectors must be *bona fide* amateurs, and the specimens must be sent in not later than October 31st, 1887. Further rules and a list of the plants required are given in part 4 of the present issue of the work, which also gives coloured illustrations of the Scarlet Poppy (*Papaver Rhæas*), and the Cuckoo Pint (*Arum maculatum*) with descriptive notes.

— MESSRS. J. CARTER & Co., High Holborn, send us flowers of BORDER PANSIES most varied in colour, very sweet, and of good size. They represent an excellent strain, to which the title "International" has been applied.

— MESSRS. WILLIAMS, BROTHERS & Co. have sent us a sample box of their PLANT AND FLOWER SUPPORTS which they are advertising, and we have no hesitation in saying that the different kinds would be very serviceable in greenhouses and gardens. They are made of wire of the requisite strength for the purpose, and have sliding loops for securing plants at desired heights. These supports are neat, light, durable, and amateurs and others who experience difficulty in procuring neat flower stakes would be pleased with a supply of these cheap and handy contrivances.

— MR. A. J. BALLHATCHETT, The Palace Gardens, Fulham, London, S.W., sends the following record of the CUMULATIVE AMOUNT OF FROST:—"Having just made up my meteorological register for the winter of 1885-6, I send you the following extract for publication, thinking it may be of interest to many readers of the *Journal of Horticulture*. At Fulham Palace, London, S.W., 106° of frost were registered here from October 6th (the first night of frost here) to December 31st, 1885; and 394° from January 1st to May 6th, 1886 (the last night of frost here), making a total of 500° for the winter of 1885-6. The sharpest night was that of January 7th, 1886, when 18° were registered."

— MR. F. ROEMER, Quedlinburg, Germany, sends us samples of some fine DOUBLE WALLFLOWERS, the blooms 2 inches in diameter, very full, and varying in colour from bright yellow to rich brown, reddish brown and crimson, the latter a peculiar tint, more like a Stock.

— THE schedule of the HULL CHRYSANTHEMUM SHOW announces that the third annual Exhibition will be held this year in the Artillery Barracks, Park Street, Hull, on Thursday and Friday, November 18th and 19th. The total value of the prizes this season has been increased by £30, one of the principal features of interest being the silver challenge vase (value 15 guineas) offered by G. Bohn, Esq., in the class for forty-eight cut blooms, which was won last year for the first time by Mr. D. Lindsay, gardener to Sir Thomas Edwards-Moss, Otterspool, Liverpool. It is offered on the same conditions as that at Kingston—namely, it must be won twice consecutively or three times altogether to become the exhibitor's property. In addition to the vase, prizes of £10, £8, £5, and £2 are offered in the same class. Two other silver challenge cups, value 10 and 8 guineas respectively, the former for a group of Chrysanthemums arranged for effect, and the other for the best tray (amateurs') in classes 22 and 23 for twelve blooms of incurved and twelve Japanese respectively. A piece of challenge plate is also presented by G. Bohn, Esq., in class 42, for a dessert table laid out for six persons, only Chrysanthemums with any kind of foliage to be used in its decoration. This is confined to ladies. In other classes there is also a good provision for competitors, and the prize list altogether is one of the most liberal issued. The Hon. Secretaries are Messrs. R. Falconer Jameson and William Hawsworth.

#### A SURREY GARDEN.

In continuance of an admirable custom, the interesting garden at The Grange, Wallington, has, during the present week, been thrown open to all visitors by the proprietor, A. H. Smee, Esq., and some idea may be formed of how this privilege is valued by local residents and others from the fact that on Sunday afternoon last over 500 persons were admitted to the grounds. This time of year is the best that could be chosen for an inspection of The Grange garden, as it possesses a freshness that is most charming. The shrubberies are rich in choice varieties of Rhododendrons, White and Scarlet Thorns, Lilac, Laburnums, the double golden Gorse, and numbers of others, but the Thorns are especially beautiful, and afford

a delightful colouring in some of the picturesque vistas. At one point in particular, near the river Wandle, there is a plant of an exceedingly rich scarlet double variety which dips to the level of the water, and is vividly reflected. The shaded winding walks and dells, with their running streamlets, miniature waterfalls, and Fern-clad banks can be most thoroughly enjoyed on a warm afternoon or evening, and many visitors must experience a feeling of regret that gardens are not more frequently planned on a similar informal design.

There is a pretty display of Orchids in several houses, but the majority of those in flower are arranged in the Fern house, where they have a graceful effect. Numerous plants of *Cattleya Mossiae* are flowering now, and some very choice varieties are included in the collection, differing considerably in size and colour. One distinct form has the lip richly veined with crimson, running deeply into the throat, the gold marking usually present having nearly disappeared. Another variety, just the reverse of this, has the lip tinged with gold throughout, the crimson colour being chiefly confined to the sepals and petals; a third is nearly white with a faint tint of colour. There are also many intermediate gradations of more or less beauty, such, in fact, as would at one time have received names, but in many establishments this custom has now been very properly discontinued. *Cattleya Mendeli* is represented by numerous varieties. *Laelia purpurata* also adds much to the attractions of the house, together with *Cattleya gigas*, of which there are some stray plants. *Odontoglossums crispum* and *citrosium* are well represented, the former by some excellent varieties, and the latter by good plants bearing graceful drooping racemes or panicles of flowers. The useful *Dendrobium thyrsiflorum* is in good condition with fine racemes of white and gold flowers, and pleases the general public more than any other Orchid. Of *Masdevallia Harryana* there are many plants and excellent varieties, *M. Veitchii* is very bright. The Humming Bird Orchid, *Masdevallia trochilus*, and the curious *M. coriacea* are also flowering. The orange red *Saccolabium curvifolium* attracts attention amongst the others owing to its distinct colour. The purple-lipped *Cirrhaea viridis*, the long-lasting *Lycaste Skinneri* and numbers of others serve to vary the display both in beauty and interest. Many ferneries of this kind might be suitably turned into Orchid show houses, for Orchids need the graceful foliage of Ferns to show them to the best advantage.

In other cool houses the general collection of *Masdevallias* is grown and thrive well under the coolest treatment, the house being most liberally ventilated at this time of year, and having extremely little heat at any other period. A plant of *M. Shuttleworthi* in a small 60-size pot has had twenty-four flowers of an excellent variety, but it is now past its best. With really useful species are included plants of such curiosities as *M. simulata*, *M. triaristella*, *M. Culex* and others. *Odontoglossums* are looking well, making vigorous growth, are evidently quite at home and apparently profiting by their sojourn out of doors last year. A curious fact is noticeable, however, with regard to the changeability of varieties under culture. A variety of *Odontoglossum crispum*, which flowered last year and was then found to be one of the best in the collection with large well-formed blooms, is flowering again now, but the blooms have come so small and imperfectly formed that if the precaution had not been adopted of marking the label previously, it would have been discarded as worthless. The plant is not a large one, and it is possible that it weakened itself last season by flowering freely, the result being the production of undersized flowers this year. Whatever be the cause, it shows how careful growers should be in condemning apparently bad varieties upon one season's trial. Two plants of *O. gloriosum* are bearing seed pods. One that has been either self-fertilised or crossed by the aid of bees has three long pods, the effect on the plant being seen in the shrivelling of the pseudo-bulbs. Another plant of the same species crossed with *O. crispum* has also a large pod and is suffering in a similar way. When experiments of this kind are undertaken with small plants amateurs must be prepared to lose them, and it is therefore dangerous to attempt them with valuable varieties, unless the experimenters are aware of the risk. In collections like that of Mr. Smee's, many interesting results might be obtained in hybridising, and it is well that amateurs are now paying more attention to the subject.

The Phalænopses are steadily improving since the plants have been suspended from the roof of the warm house over a shelf upon which small Ferns and other plants are growing, and from which a constant healthful moisture is arising. This practice has been adopted by several of the most successful cultivators. The pretty but seldom seen *Dendrobium mesochlorum* is flowering freely upon its slender stems, the small white flowers with their purple-tipped sepals and petals being most graceful. An unnamed *Dendrobium* in the way of *D. draconis* (*eburneum*), is flowering, but it seems distinct from that species in the longer lip, and in the sepals being tinged with yellow. These are only a few of the principal plants in flower, but there are many more advancing, and a collection which comprises over 700 species and varieties can never be wanting in interest, and under the care of Mr. Cummins the general health of the plants is all that could be wished.

#### CHRYSANTHEMUM SEGETUM CLOTH OF GOLD.

A HANDSOME variety of *Chrysanthemum segetum*, or possibly a hybrid between that and some other species, has been obtained by Mr. Robert Owen, Castle Hill, Maidenhead, and it seems likely to be such a useful addition to this race of plants that we give an illustration of the variety. The blooms sent to us were of great size, the florets thick, and the colour an extremely rich golden yellow.



Writing respecting this plant, Mr. Owen remarks—"The Chrysanthemum or Marguerite Cloth of Gold is a chance seedling. I planted three years ago every variety I thought worth cultivating—two or three plants of each—both of *C. frutescens* and the annual varieties. I saved the seed from each, and sowed it the following year (1884) in the open ground, and from the seedlings I selected four which I thought distinct, Cloth of Gold being one of these. The original plant in a 16-size pot is now in full bloom and ripening seed at the same time; it has been flowering since last summer. Cuttings strike very freely. I cut many flowers during winter and quantities during spring, and I am told it lasts quite a week in a cut state. The florets droop at sundown and in dull weather, but expand again during light days and bright weather. I have



Fig. 83.—*Chrysanthemum segetum* Cloth of Gold.

measured blooms 4 inches in diameter. The flower stems average a foot in length."

#### MR. WILLIAM BULL'S ORCHIDS.

It is impossible to imagine a more beautiful and tasteful floral display than that provided in Mr. W. Bull's nursery, King's Road, Chelsea, and, admirable as have been his previous exhibitions of Orchids, this season's production surpasses them in all points. Those who have a keen remembrance of visits in other years will scarcely think it possible to excel such charming displays, but it is an admitted fact by many who have made the comparison. This year greater numbers of species and varieties are represented, the flowers are more numerous, yet there is a sufficient proportion of graceful fresh green Ferns and Palms to soften the brightest tints and prevent the slightest approach to an undue preponderance of colour. The great charm is, however, found in the arrangement, which is free from all formality, the plants being disposed with that highest art which is concealed from the observer, and so natural do they appear either in groups or singly, that we could imagine them luxuriating in their native homes. Sticks and stakes, which are too frequently employed for

Orchids, are abjured in the Chelsea establishment, as in very few cases do the flowers need any artificial support, and the panicles or racemes, which naturally have a drooping or pendant habit, can only be seen to advantage in that position, for when rigidly secured they lose more than half their beauty. *Odontoglossum citrosmum*, for instance, which usually has its elegant panicles fixed to perpendicular sticks, is then deplorably formal; but when, as at Chelsea, the plants are suspended in baskets from the roof at intervals, the drooping flowers assume their natural appearance, and the species is seen as one of the most beautiful of the genus. Orchid flowers are in themselves so informal that everything associated with them and their surroundings must be similarly informal, or the incongruity is at once noticeable; so that although it is necessary in cultivation to have the greater part of the plants in pots, but when being arranged for effect the pots should be concealed as far as possible. This point also has received careful attention in Mr. Bull's house of Orchids, and by the employment of Ferns, Selaginellas, and other suitable plants a delightfully varied undulating bank of greenery is formed from which the flowers peep forth in an irregular and most artistic manner. The central bed and side stages are margined with *Adiantums* and a deep fringe of *Panicum intermedium*, a pretty form with green-striped leaves, well adapted for work of this kind, and the paths are formed of dark material that has been found much better than anything light coloured, such as gravel or shells, which detracted from the appearance of the show. These points are mentioned to indicate that, however fine a collection may be grown, the success of an arrangement depends greatly upon attention to matters that the inexperienced might be apt to overlook.

The house devoted to this magnificent exhibition of Orchids is about 100 feet long, with a central bed, round which a path passes, and two side stages, and it would be difficult to estimate the number of plants employed or their aggregate value. The collection includes some of the choicest varieties of well-known species that could be obtained by importation or purchase, and it need scarcely be said that the plants are in first-rate health, for nothing short of this would be tolerated by such an experienced orchidist as Mr. Bull. Upon entering the attention is arrested by a grand bank of *Odontoglossum vexillarium*, an Orchid which many find difficult to grow, but which is a speciality at this nursery, and apparently grows as freely as the most easy. There are several fine varieties, such as bicolor with a white lip and rosy sepals and petals, tricolor similar, but with a yellow blotch at the base of the lip, and some highly coloured forms such as *rubrum*; but one of the most beautiful is that named *chelsoniense*, which has flowers of great size, excellent in form, with heavily marked dark rosy crimson lines radiating from the base of the lip. Throughout the house the plants of *Odontoglossum vexillarium* instantly attract attention, although the eye is too taken by the general effect that a visitor must pass round several times before he can particularise, and even then it seems irksome. Other *Odontoglossums*, such as the favourite *crispum*, *citrosmum*, the scarce, distinct *polyxanthum*, and *cirrhosum* are well represented, but the first two named are in the majority, the varieties differing greatly, but all are good, the crispums being especially noteworthy for their superb forms, the broad substantial petals, and sepals pure white or deeply tinted with rose and spotted. Of *O. citrosmum* varieties are seen with pure white flowers, and others with the lip tinted with various shades of rose, or with the petals spotted. *Odontoglossum nebulosum* is very noteworthy, the varieties *pardinum* and *punctatum* forming a beautiful pair, the former with large roundish spots lighter in the centre, and the latter freely dotted with small spots. The lovely little *Odontoglossum Cervantesi* and the floriferous *O. Rossi majus* are numerous, plants of the latter in small 60-size pots having fifteen to twenty flowers, abundantly proving its usefulness. *O. luteo-purpureum* is growing very strongly, one handsome plant bearing three long racemes of darkly coloured flowers. Many other charming *Odontoglossums* might be named, but another important genus demands a few words of praise.

*Cattleyas* and *Lælias* take a place amongst the most noble of the aristocratic family, and the Chelsea collection is remarkably rich in choice representatives of those magnificent Orchids. Looking along the banks on each side of the paths single specimens or little groups of *C. Mendeli* and *C. Mossiæ* in innumerable grand varieties are prominent. *Lælia purpurata* is equally numerous and varied, the superb form *Bryasiana* and others of equal beauty at once commanding attention. Of *Cattleya Mendeli*, a magnificent variety faces the path in front of the mirror at the end of the house, where, in company with some choice *Odontoglossums*, its intensely rich crimson lips are seen to the greatest advantage; it is one of the finest forms in cultivation, numerous as these are at the present time. The profuse *Cattleya Skinneri*, the fragrant yellow *C. citrina*, the elegant bluish-tinted *C. Schilleriana*, the new and fast improving *C. Lawrenceana*, the attractive *C. Warneri*, the dwarf pretty *C. lobata*, the majestic *C. gigas*, and many others contribute materially to the beauty of the Exhibition.

A bare enumeration of the Orchids in flower would occupy considerable space, and we must confine these notes to a few references to the most remarkable plants, but it will be difficult to do justice to them in a hurried description. *Cymbidium Lowianum* is in excellent condition, a number of large vigorous plants being included, and some distinct varieties such as *atro-purpureum*, which has extremely dark richly coloured lips, a striking contrast with the ordinary forms, and *albosanguineum*, in which the throat of the lip is pure white, and the upper portion deep red. Delightful flashes of colour are furnished by the bright orange scarlet *Epidendrum vitellinum majus*, and crimson shades are supplied by *Masdevallias Harryana* and *Linden*, the varieties of the former being particularly handsome. *Cypripedium ciliolare* and *C. Lawrenceanum* stand out prominently amongst the "Ladies' Slipper"



Orchids. The useful *Oncidium concolor* is freely employed with excellent results, and the new *Oncidium Jonesianum* is bearing its handsomely spotted flowers, *Oncidium macranthum*, and *O. bastiferum* with clear yellow petals and brown sepals are also notable. With these must be mentioned the extraordinary Butterfly Orchids, *Oncidium Papilio* and *Kramerii* with their golden and reddish brown flowers floating in the air on slender stems, almost startling in their resemblance to the gaily coloured butterflies of tropical regions. These mimicking Orchids take the popular attention far more than the most brilliantly coloured species, and they add greatly to the interest of a collection. *Anguloa Clowesi*, *Sohralia macrantha*, *Thunias*, *Aerides*, *Phalænopsis*, *Dendrobium*, such as *thyriflorum*, *Jamesianum*, and *infundibulum*, with innumerable others, unite to form an exhibition which is worthy of a visit from all admirers of Orchids, or who appreciate a tasteful floral effect.

### ROSE SHOW FIXTURES, 1886.

FOR the guidance of those Societies which have not as yet fixed the dates of their exhibitions we publish the following list of Rose Shows arranged to be held during the coming season.

- Bagshot and Windlesham Rose Society, at Bagshot, Tuesday, June 29th.  
 Diss Horticultural Society, at Diss, and the Canterbury and Kent Rose Society, at Canterbury, Tuesday, June 29th.  
 Farningham Rose and Horticultural Society, at Farningham, Wednesday, June 30th.  
 Croydon Horticultural Society, at Croydon, Wednesday, June 30th.  
 Reigate Rose Association, at Reigate, Thursday, July 1st.  
 Tunbridge Wells Horticultural Society, at Tunbridge Wells, Friday, July 2nd.  
 Brockham Rose Association, at Dorking, Saturday, July 3rd.  
 Eltham Rose and Horticultural Society, at Eltham, Saturday, July 3rd.  
 Crystal Palace Rose Show, Saturday, July 3rd.  
 National Rose Society, at South Kensington, Tuesday, July 6th.  
 Cardiff Rose Society, at Cardiff, Wednesday, July 7th.  
 Sutton Amateur Rose Society, at Sutton, Wednesday, July 7th.  
 Oxford Rose Show, Wednesday, July 7th.  
 Ealing, Acton, and Hanwell Horticultural Society, at Ealing, Wednesday, July 7th.  
 Bath Floral Fête and Band Committee, at Bath, Thursday, July 8th.  
 Ipswich and East of England Horticultural Society, at Ipswich, Thursday, July 8th.  
 Hitchin Rose Society, at Hitchin, Thursday, July 8th.  
 Hereford and West of England Rose Society, at Hereford, Friday, July 9th.  
 Maidstone Rose Club, at Maidstone, Friday, July 9th.  
 Cray Valley and Sidcup Horticultural Society, at Frogna, Saturday, July 10th.  
 Wirral Rose Society, at Birkenhead, Saturday, July 10th.

### PROPAGATION OF TUBEROUS BEGONIAS.

THE Tuberous-rooted Begonias have, during the past few years, been making steady progress in the flower garden, and they are admitted by all who have attempted their culture in open beds during the summer and autumn months to be unique. It is a step, too, I feel sure, in the right direction, as by its adoption we see less of the vivid glare which has too often occupied the greater part of many summer beds. The formality of the design, too, is somewhat avoided, for happily we cannot pinch and pick, in other words, mutilate the Begonia so as to form it into any set design, so that it must be allowed to grow naturally to see it in perfection. When thus seen they may be said to constitute one of the most enjoyable floral arrangements which any garden can contain. The Begonia delights in a free, light, sandy, and fertile loam, and commences flowering almost from the first joint, continuing successively to produce its varied coloured blossoms till checked by autumn frost. Those who desire an attractive bed should never select the huge-flowered varieties, which are better for pots in the conservatory, or for exhibition.

The simplest means of obtaining a stock of Begonias is by seed, and which is easily managed, provided the following simple rules be adhered to. Firstly, the soil should be in good order when the seed is sown, or it may be opened on the bench or the floor of a dry shed, sufficiently dry in fact to pass through a sieve of three-eighths of an inch mesh without clogging, then three parts fill thoroughly drained pots, making the surface even and very firm, sprinkle a little white sand on this to mark where the seed falls, and thus avoid sowing too thickly, in which case many decay. Secondly, after sowing the seed scatter very lightly from a wire gauze sieve (or if this be not at hand the fine rose of a watering can I have found an excellent substitute) a little dry silver sand, so as to barely cover the seeds, after which plunge away in slight bottom heat—say about 60°, and cover the pots with a piece of glass. If the soil is in the right state they will not require watering for three or four days, keeping the pots at this stage quite dark, as by so doing watering is dispensed with, for after all the watering pot is the greatest enemy in the raising of Begonias from seed. The seed should be barely covered, and in fact some growers do not cover it at all. I have frequently adopted the same practice with equal success; but knowing the great losses attending the injudicious use of the watering pot, I nearly always cover it as above described, and thus avoid the seed being displaced when vegetating, which is sure to end fatally. Watering, I may observe, should never be done till the seedlings have their second leaf. What appears to suit the

seed best, and which falls very lightly on them, is the spray from the syringe given at a distance, and settling on the seed pots much as a thick misty rain. Thirdly, when the seedlings are up always avoid incessant sprinklings over the foliage. This is highly detrimental and often fatal to them, consequent upon their extreme succulent nature at this time. When they have reached the second and third leaf a lighter position near the glass will suit them, where they will soon make headway and be ready for planting in small nursery trial beds, having been thoroughly hardened previously, and of course pricked off into boxes or pans in the usual way of small seedlings.

The other means of increasing this section of Begonias to which I shall refer is by cuttings. It is by this means that the best forms of the singles and all the doubles are propagated, and which can only be performed where good strong tubers exist, capable of throwing up several strong growths. In adopting this method, and to avoid overcrowding and the consequent damping off, the cuttings should be inserted singly in small thumb-pots, using rough fibrous leaf soil and plenty of sharp grit, passing all through a half-inch sieve, well rubbing the fibre through. The soil ready, the next thing is the cuttings, and this is how I get them:—Taking half a dozen large 60-pots and as many labels, I select the strongest and forwardest plants, having cuttings 3 or 4 inches long. These I detach with a sharp knife close to the tuber, securing, where possible, a slice of bark and a heel as well to the cutting. Such cuttings as these are almost sure to form roots readily with judicious management. Those, however, that cannot be obtained in this way should be taken off as close to the tuber as possible, and where the naturally succulent growth is somewhat firmer. These latter, though by no means difficult to root, require the greater care. Having filled half a dozen pots, take them to the potting shed, potting them singly, and labelling each one, defining singles from doubles by placing the first letter of each word on the label as the case may require. When all are complete, plunge them into bottom heat of 60° or 65°, but on no account water them for the first two or three days. It is the orthodox practice to water cuttings newly inserted at once, and generally speaking, with softwooded plants it is the right way to prevent flagging. The Begonia, however, is extremely succulent, the stems being capable of sustaining themselves for days, even in a cutting state, without water, and even longer, provided they are plunged in damp cocoa fibre and kept comparatively close. By the third or fourth day the cuttings will have begun to heal, in other words, be in the first stage of forming a callus. When this stage is passed the danger is considerably lessened, and presuming the soil is dry on account of the heat in the propagating house, a good watering may be given, leaving the lights off for three or four hours till the foliage is quite dry. This watering under the circumstances I have described should last them five or six days, according to the weather at the time, after which all that are dry are best taken out singly and watered, for it is not an easy matter to direct a volume of water to any particular pot in the propagating case without wetting others. By taking them singly as described, each may be watered effectually without damping a leaf, a thing to be desired when propagating these Begonias from cuttings. After the tenth day air may be admitted by degrees, according to the progress of the cuttings, thus keeping them short and of sturdy growth, as, by being essentially greenhouse plants, they soon become drawn and weakly if kept too warm or too close. In three weeks or a month the majority will be well rooted, and having been exposed in the house for a few days may be repotted into small 48-sized pots. These will carry them through the first season, one of the chief points being to secure a sound tuber by the autumn.—J. H. E.

### HORTICULTURAL SHOWS.

THE following are the dates of the principal Shows to be held during June and July this year. The great event of the season will no doubt be the provincial Show of the Royal Horticultural Society at Liverpool at the end of June.

#### JUNE.

- 8th.—Royal Horticultural Society Committee meetings; Orchid Exhibition.  
 9th.—Royal Botanic Society second Summer Show.  
 11th to 18th.—Manchester National Horticultural Exhibition, Old Trafford.  
 17th and 18th.—Brentwood.  
 22nd.—Royal Horticultural Society Committee meetings and Pelargonium Show.  
 23d and 25th.—York Floral Fête.  
 29th to July 5th.—Royal Horticultural Society Provincial Show at Liverpool.  
 30th.—Croydon Horticultural Show.  
 30th.—Royal Botanic Society's Evening Fête.

### CULTIVATED VIOLETS.

(Continued from page 421.)

VIOLETS have one characteristic in common—viz., they need similar situation, soil, and treatment during the preparatory or growing season; albeit, the arrangement of the plants in the summer must accord with the purpose they are intended for in the winter. If to flower where grown the plants must be disposed in such manner as will best admit of their being covered with frames, accelerate the gathering of the flowers, and facilitate affording protection in severe weather. Though a native of this and other countries where the winters are severe, the fact of culture,



and especially high culture, rendering plants, otherwise hardy, less so, cannot be too strongly impressed on the minds of Violet growers.

*Situation.*—Although the Violet is naturally a shade-loving plant, it is culturally so enlarged in its parts that it requires full exposure to light and air for the solidification of the growth as made in order to obtain plenty of flowers in due season. The situation should be open, exposed to the sun from its rising to setting, but if there is the shelter of low shrubs or hedges so high as to break the force of winds from the south-west to south-east following the course of the sun, it will be an advantage. Walled gardens, and spaces enclosed by hedges, are eligible, only the plants are kept at such distance from the walls and fences as to be beyond reach of the hot and parching influence of the heat they reflect and radiate in hot weather, and are kept from the shade occasioned by the walls or hedges. The warmth of a south, and of an east and west border, is of great advantage in winter, and in spring in accelerating the flowering and in securing immunity from cold, but the cultivator must be prepared to supply moisture to plants so located corresponding to the increased necessity, or the result will be an enfeebled plant. A north border is, of course, the place to plant with a view of having Violets late, but even in this the danger is that the soil may become dry in the immediate vicinity of the wall or hedge, retarding the growth of the plants in summer so that the gathering flowers in late spring is most precarious and unsatisfactory. All things considered, a situation exposed to full sun and air is much the best for Violets.

*Soil.*—Any kind of soil in good heart will grow Violets. The best is a good hazel or yellow loam, sufficiently porous as to allow of the free percolation of water through it. Wet soil is of no use for them until it is drained efficiently, and light soil is equally unsuitable until it is made cooler and more retentive of moisture. Heavy soil may be improved by an application of burnt clay, ashes, sand, and old mortar rubbish, soil from potting benches, rubbish heaps (woody matter should be charred), and road scrapings. The practice of throwing up clay soils in ridges, either to summer sun or winter frost, has a decidedly advantageous ameliorating effect, and turning it over on dry frosty mornings aids the process considerably. Light soils will be permanently improved by a good marling or dressing of clay, it being exposed to frost when it will fall on thawing, or baked in the sun it will fall with rain; in any case it should be broken into as small particles as possible. A dressing of chalk is useful on light soils, and so is lime, especially in the case of soil of a peaty or alluvial nature, one bushel per rod ( $30\frac{1}{4}$  square yards) being a proper dressing. As the tendency of all solid matter is to sink deeper in the soil the materials named should always be applied on the surface, and only mixed with the top spit of the ground by forking, any deep digging or trenching having previously been done. If trenching be necessary care should be taken not to bring up much of the stubborn pan to the surface, as it is poor and sterile, and of no use to Violets or any plant until it becomes ameliorated and enriched by atmospheric influences. It is better to break up the pan and leave it loose at the bottom of the trenching. Ground in good heart, having been well manured for previous crops, and those not being of an unusually exhaustive nature, will need very little, if indeed any manure. If poor, a good dressing of manure is essential, and it should be decayed, as fresh manure keeps the soil too open and induces a rank growth in the plants. The manure should not be buried deeply, but pointed in with a fork only. Ordinary soil will have all Violets need in a dressing of ordinary manure or leaf soil, merely pointed in prior to planting. They like a porous well-worked soil.

*Arranging the Ground for Plants.*—For the large-growing kinds the ground is best disposed in ridges similar to Potatoes 18 inches apart, the ridge being rounded and about 4 inches high. The medium-growing sorts should have the ridges 15 inches apart and 3 inches high; and lesser sorts 12 inches, with a ridge of a couple of inches high. The object of these ridges is to keep the plants well up to allow the leaves to fall away from the crowns and develop laterally, securing a maximum of value from light, air, and the free percolation of water through the soil, with the certainty of its being kept from the crown or centre. The effect on the plants is to secure strong central crowns and check the tendency to lose the centre and form a quantity of side issues, which never quite flowers at all comparable with plants having strong centres. By this arrangement of the plants they are readily available for weeding, removing runners, and mulching, and if wanted covered with frames three rows of those at 18 inches distance will take a 4 feet 6 inches wide frame; three rows of those at 15 inches will be covered by a frame 4 feet wide; and four rows of those at 12 inches with a 4 feet wide frame, and to allow for facility of ventilating and gathering the flowers every fourth row of those at 18 and 15 inches respectively will need be omitted in planting, and every fifth row of those plants at 12 inches distance between the rows. If the rows that would be needed vacant in winter, presuming the rows remaining were covered with frames, can be utilised for growing plants in summer to plant in frames or pits it will be an advantageous occupation of the ground until then; but if the plants are not so required it will be a sheer waste of soil and labour to occupy the space with plants in summer that must be cleared off in autumn, and the spaces kept clear will much facilitate cultural operations. In the case of the plants not being intended to be covered with frames it will much assist the general routine work to leave out every fourth row of those at 18 inches and 15 inches, and every fifth row of those with the rows 12 inches apart. The distance of the plants in the rows should be respectively 15 inches, 12 inches, and 9 inches, or 3 inches less than the rows are asunder.

On wet soil it is advisable to form beds 4 feet wide, with 2 feet alleys between, the soil being taken out of the alleys 6 inches deep, and spread evenly over the beds. The ridges should be drawn across the beds 18, 15,

and 12 inches apart, so as to accommodate the strong-growing plants at 15 inches distance apart in the rows, and the end plants 9 inches from the sides of the bed, the medium growers 12 inches asunder, and the end plants 6 inches from the sides of the beds, and the small growers 9 inches apart in the rows, and the end plants 6 inches from the side of the bed, which will give three, four, and five plants in the rows respectively. This arrangement admits of cultural operations being expeditiously performed, and of covering with frames 4 feet wide if deemed advisable. The beds should have the ends north and south.

*Planting.*—April or early May is the best time to plant. Select well-rooted runners or suckers of plants that have been grown outdoors. If they must be taken off plants that have been grown in frames the lights must have been off some time, so that the plants will be thoroughly hardened. Frame plants have their growth accelerated by the warmth the frames afford, and are to some extent debilitated so that they are not so good for outdoor plantings that are not to be so sheltered in future, as the plants have a tendency to complete their growth earlier and flower prematurely, which is not assuring of a full crop in spring. Hardy thinly grown plants afford the sturdiest and best rooted runners or suckers, and such only are advisable to yield a full supply of flowers in their proper season. Keep the plants as much as possible from the drying and injurious effects of the atmosphere, and plant with as little delay as possible. Plant so that the—taking out soil sufficient wide and deep to allow of the roots being spread out—growing point or centre is just level with the soil, and press the soil well about the roots, the plants having a slight dish around them to hold water, of which a good supply should be given at once to settle the soil about the roots. A showery time is the best to make fresh plantations of Violets, as they sooner become established, and the necessity of watering is decreased. Watering must be attended to daily if the weather be dry, and some pea sticks laid over the plants so as to break the fierce rays of powerful sun will materially assist the establishment of the plants. Some evergreen branches or tiffany shading will be a more effectual screen from sun, but such if employed must be removed at night so as to afford the plants the benefit of dew. If the weather be dull and the plants in proper condition shading will not be necessary, and getting them established without it is all the better.

*Cultural Requirements.*—Keep the plants free from weeds, which is best effected by stirring the soil frequently with a hoe, that not only keeps weeds effectually under, but a loose surface admits of the free absorption of moisture, and of the rapid passage of rain carrying air with it, and this is one of the greatest aids of rendering food available, and consequently its assimilation by the plants. Allowing weeds to get ahead until their removal by hand becomes a necessity causes increase of labour, depriving the plants of light, air, and moisture. Every weed robs the crop in many ways, and yet weeds are allowed to get tall and strong before the cultivator takes measures to eradicate them. The weeds have, then, taken more nutriment from the soil than the legitimate plants, and the latter have less food available for their use. They show this in the crop, for as the plant is nourished so is the resulting produce. Weedy plants are weak and drawn, cleanly plants are sturdy and well favoured; barrenness is the characteristic of one, floriferousness of the other.

*Firming the Soil.*—In four to six weeks the plants will have taken freely to the soil, having made some growth, and a good amount of roots. By the middle of June the soil, if properly attended to in hoeing, will be clean and loose, full of air and solar heat, and the plants growing freely. The plants must be kept in steady progressive growth, and this is best effected by firming the soil well about them, and thus giving greater resistance to the passage of the roots through the soil will multiply them. The ground should be dry at the surface when the soil is firmed. Press the soil with the feet, going all round the plants, and as near the neck as possible without injuring the leaves or collar. The whole of the ground should be well firmed, and this is an absolute necessity on light soil, and advisable on all, only heavy soil will be close enough of itself, though if clotty a good treading will be of benefit.—*VIOLA.*

(To be continued.)

## PLANTS AND THEIR DEFENCES.

A CONSTANT struggle for existence, the consequence of the enormous increase in the numbers of the individuals of almost every species, is the fate of nearly every organism, both animal and vegetable. Some have to sustain the attacks of others which are directly antagonistic to them, and which regard them as prey; in the case of others the struggle is rather one to live in the face of adverse conditions or peculiarities of environment, so that the different organisms are not directly hostile, but each affects its neighbour injuriously by adapting itself more readily to the changing surroundings, and so diminishing the other's power of obtaining nutriment, sunlight, or whatever other condition may be the object of their competition. Thus have been developed in the different competitors different features of their constitution—many perfecting powers of active assault, others facilities for active or passive defence. The last named is particularly the feature found in the vegetable kingdom. The want of locomotion prevents any aggressive movement of the individual, and hence success in the struggle can only be secured by more complete adaptation to environment than its competitors can show, or by protective mechanisms guarding the individual from the assaults of organisms inclined to prey upon it. These mechanisms exhibit very great variety, and their object often seems obscure till they are looked at in the light of the environment of the plant, the conditions of its life, and the enemies against which it has to contend. The specially exposed points of attack



are three: the succulent leaves and shoots or the attractive fruits are assailed by animals in search of food; the honey secreted by the flower to allure to it the particular insect adapted to bring about properly the process of fertilisation attracts also other insects whose presence is useless for such purpose, and which therefore are only robbers; while the fertilising pollen is itself the object of desire on the part of others which are equally unable to apply it to its legitimate purpose.

The protective mechanisms of plants, therefore, so far as they are directed against aggressive animals, are to be looked for mainly in the neighbourhood of the young growing parts or the reproductive organs. Not exclusively, however, but generally the older vegetative parts are defended by their own inherent qualities, such as their hardness or wiriness, which keep them from being suitable for the food of their assailants. Such young growing parts in many plants, particularly those growing in exposed regions, are plentifully supplied with thorns, spines, or prickles, rendering them in many cases extremely formidable. The thorns or prickles may be produced on almost all the vegetative organs, and may be merely epidermal structures, or much stronger in composition, containing considerable developments of woody tissue. These thorny plants are most noteworthy in desert countries, some that are met with there, notably the so-called "Wait-a-bit" Thorn of Africa, having spines of immense length, and being quite impenetrable by man or beast. Cases are not of infrequent occurrence where even the lion himself is a considerable sufferer by coming into collision with this plant. So great is the development of the thorny character in this region that Grisebach connects it particularly with desert exposure and scarcity of vegetation. Nor are thorny plants by any means confined to such regions—on our own heaths the Gorse is a familiar plant, and one sufficiently formidable to passers-by; while other spiny Leguminosæ, as the Rest-harrow (*Oonopsis spioosa*), are not infrequent by the wayside. A further peculiarity may be noted in connection with these plants; often the thorns do not occur above the point which is assailable by the animal in its search for food; while, when the shoot has outlived its period of succulent condition, and its tissues have become hard and dry, the thorns do not persist, being much more numerous when the part is young.

Nor is this spiny habit confined to shrubs or trees. The Cactaceæ, which are so remarkable a feature of the vegetation of America, are equally well protected. Their surfaces show great variety of development in this particular: some have small groups of thick rigid spines, others long flexible needles of intense sharpness, penetrating easily the skin of the assailant, and almost impossible to extract.

More formidable defences even than thorns or prickles are found in the varieties of stinging hairs borne so plentifully on the leaves of many plants. These are represented in England by the two species of Stinging Nettle, which are, as everyone knows, capable of producing considerable discomfort to the unwary person who handles them. These are, however, not worth mentioning by the side of many of their tropical relations. The structure of the hair in all these is similar: a mass of cells forms a kind of swollen cushion below; on this is seated the long tapering hair, which ends in a somewhat recurved point or hook. The walls of the upper part of the hair are very strongly silicified, and are, consequently, easily ruptured. Lower down there is but little silica. When touched or rubbed by the hand, the pressure drives the hair downward; at the same time the brittle hook penetrates the skin and breaks off. The downward pressure forces out from the broken hair a fluid of intensely acrid nature, which, on entering the wound made by the point, sets up more or less severe inflammation. The fluid is generally conjectured to be formic acid—a view based on the fact that this acid can be obtained from the Nettle plant by suitable means.

While the English representatives of this group of plants are sufficiently formidable to careless intruders, some of their connections in other parts of the globe are distinctly dangerous. A traveller in Australia describes a specimen of *Urtica gigas* in the following terms:—"A specimen seen by Sir W. McArthur, still in full vigour, rises from its base by a series of buttresses of singularly regular outline, gradually tapering, without a branch, to a height of 120 to 140 feet. The trunk then divides into a regularly formed, wide-spreading head, which excites admiration from its extraordinary size. But the ordinary elevation of this tree is 25 to 50 feet, with a circumference of 12 to 20 feet. The leaves, when young and in vigorous growth, attain a breadth of 12 to 15 inches, and are of a beautiful dark-green colour. As may be expected, the poisonous fluid secreted from the foliage is very powerful, particularly in the younger leaves, and their sting is exceedingly virulent, producing great suffering, not unattended with danger. It is found in the northern part of New South Wales, and is a great impediment to the traveller." An Indian species (*Urtica* or *Laportea crenulata*) is equally obnoxious. It has rather large leaves, round which numerous small stinging hairs are placed. At certain seasons it emits when bruised so irritating an aroma as to cause a copious flow of saliva and mucus from the nose and eyes for many hours, while violent fevers have been caused by the fluid poured out from its ruptured hairs. *Urtica urentissima*, a Timor species, which is known to the natives by the significant appellation of "devil's loaf," has been known to produce effects so violent as to last twelve months, and has in some cases even caused death. *Malpighia urens* bears on its leaves hairs  $1\frac{1}{2}$  inch long, which are pressed flat along the surface. These act very similarly to those of *Urtica*.

The Loasææ, or Chili Nettles, exhibit similar defences, their power of stinging being very severe.

Other plants are protected also by hairs, which play rather a mechanical than a chemical part. Such are various species of *Deutzia*,

particularly *D. scabra*, which bears on its leaves numerous star-shaped hairs whose walls are permeated with silica.

Besides these defences, which are chiefly mechanical, though in the case of the Nettle a secretion acting chemically plays an important part in their behaviour, many plants are protected by chemical means alone. This is seen chiefly, though by no means exclusively, in the case of flowers and fruit. The plant secretes in different parts, or it may be throughout its system, a juice which may be poisonous, or acrid, or harmless in effect, but very unpleasant to its assailant. Thus very many of the Solanaceous plants have poisonous fruit, as *Atropa Belladonna*, and some species of *Solanum*. The whole plant is charged with juice of great pungency in many of the Ranunculaceæ, *R. sceleratus* causing sores if allowed to come into contact with a delicate mucous membrane such as that of the mouth. Parts of the Aconite (*A. Napellus*) are intensely poisonous, while the seeds of *Strychnos Nux-vomica* yield the well-known drug strychnine. Others have a latex or juice which is intensely bitter and unpleasant to the taste, as the different species of Spurge (*Euphorbia*), the Dandelion, the wild Lettuce, different species of Poppy, and many others. An acrid juice is to be met with in many Cruciferae, as the Mustard and the Radish. The aromatic Umbelliferae, also, are protected in this way from many of their enemies, the peculiar flavour which they possess being very unpalatable to many birds which are attracted by their fruits. Other plants pour out resinous and other sticky secretions which serve the same purpose. Some others are protected by the possession of a very foetid odour, much resembling putrefying animal matter, though this has probably been developed to attract the carrion-loving flies which secure cross-fertilisation of the plants. Such are *Arum Dracunculæ* and *Stapelia*, the latter a genus of *Asclepiadaceæ*.

A very different kind of defence against intruders is found in a Sumatran parasite, *Hydriophyllum formicarum*. This plant, instead of developing special weapons of its own, attracts to itself a colony of ants whose sting is very severe. These resent very effectually the attacks of animals inimical to the plant. It is described as parasitic on trees in the form of a large irregular tuber, fastening itself to them by fibrous roots, and throwing out several branches above. The tuber is generally inhabited by ants, and is hollowed out by them into numerous winding passages, which frequently extend a good way along the branches also, giving them the appearance of being fistular. A similar arrangement is found in *Acacia sphærocephala*, but a more elaborate one, as the plant not only serves as a habitation for the ants, but develops certain organs to attract them to it. The stem and branches are furnished with very large thorns, which are set along them in pairs. The thorns are enormously swollen at their bases, which are hollow, and in these swellings the nests of the ants are found, the magnitude of the enlargement being no doubt caused by the irritation of the insects. At the base of each pair of thorns, about midway between the two, is found a large nectar-secreting gland, which is very active. The leaves of the plant are pinnate, and on the leaflets are numerous small pear-shaped glands, consisting of delicate masses of cells containing an oily secretion. *Cecropia* is also protected in the same way; its stem is hollow and contains the nests of the ants. As in the case of the *Acacia*, glandular structures are present, which attract the ants and afford them food. Schomburgk describes a plant belonging to the order Polygonaceæ (*Triplaris Schomburgkiana*), a native of Guiana, as having its trunk and branches hollow between the nodes, and serving as the habitation of venomous ants. He also mentions an Orchid (*Schomburgkia tibicinis*), which, he says, has pseudo-bulbs arising from creeping root-stocks. These have a small hole at their base, and ants and other insects construct their nests therein.

Turning more especially to the reproductive organs of plants, we find them attractive to intruders, not only on account of their own palatability or succulence, but as providing two especial delicacies much sought after by the insect world—honey or nectar, and pollen. The object of the secretion of the former is to secure the due transference of the latter from the stamen of one flower to the pistil of another, and this is effected in most cases by some particular insect. The invasion of others would hence lead to loss of honey or pollen, or both, without securing the end aimed at. It is natural, therefore, to expect to find many contrivances to secure the secretion to the appropriate insect, and an almost infinite variety is found, some mechanical, others chemical, others partaking of the nature of both. The enemies most guarded against are those insects which we have seen in some other plants especially courted—ants. In assailing the plant they must usually ascend the stem from the ground, and many and various are the pitfalls placed in their way. In the Teale, the leaves, arranged in pairs along the stem, have their bases attached to it and to one another, forming deep cups, which are filled with water, thus presenting an obstacle to their ascent. The leaves of the Pine Apple are arranged to bring about the same result. Some plants are surrounded in their growth by water, as many of the Polygonaceæ. In *P. amphibium*, which grows sometimes in water and sometimes on land, and has two characteristic forms accordingly, the land form has developed round the flower-stalks a number of sticky glands, while the water form has nothing of the sort. The two forms are protected from the ants, but by different means. *Silene*, the Catchfly, and *Circea*, the Ecobanter's Nightshade, also are examples of plants furnished with sticky glands. *Lactuca*, the wild Lettuce, emits a milky juice on being assailed by them. Other plants, as some varieties of the Willow, have very slippery flower-stalks, which the ants cannot pass along. The forms of the flower, too, lend themselves to protective purposes: thus *Antirrhinum* and *Linaria* have a close-shutting corolla, which they cannot enter; *Cobæa* is furnished with free hairs growing on the corolla, which block the way to the nectar, and which are insurmountable by the insects. Where such means are not found, in some



cases a counter-attraction is provided to draw the unwelcome visitors to parts where their attention will be harmless: thus *Impatiens* has honey-glands on the leaves which are said to stop the ants on their way to the flower.

Other insects than ants are also to be guarded against. Many flowers are capable of fertilisation by more than one species of insect, but others are especially adapted only to one kind. In these the form of the flower, while affording facilities for the proper insect to receive its pollen upon the proper region of its body, also presents obstacles to others which would be useless. The peculiar construction of the corolla in such cases serves as a protection to both nectar and pollen. This may be carried still further, access to the honey by other than the appropriate channel being hindered by chemical means. An instance of this is seen in the Alpine varieties of the *Aconite*, which are adapted for fertilisation by bees. Instead of the insect inserting its proboscis into the flower from the front, so as to make it pass the stamens and pistil, one bee (*Bombus maurus*) bites a hole in the back of the hood formed by the sepals, and abstracts the honey. The white variety of the flower is unprotected against the theft, but the other, blue in colour, has a nauseous, bitter taste, and so is let alone.

Besides meeting the attacks of animals in these different ways, plants have to cope with other dangers, and require for these another system of defences, which are more associated with peculiarities of environment. They are assailed continually by varying conditions of climate and temperature, and have in many cases very curious modifications of structure and habit to correspond with these. A danger that threatens most plants, except in a few regions of the world, is that of having their pollen injured by rain. To meet this many varieties of form of corolla have been developed. Many have a long narrow tubular shape, the claws of the petals cohering together, while the free limbs can curve outwards in fine weather, but arch over the tube when wet. Others have a campanulate form, with the base of the bell upwards, so that rain falling on the flower cannot get near the stamens, but is shot off as by a roof. In others the stamens are covered over by development of another part of the flower, as in the *Iris*; the filament of the stamen, too, may be broad, and bear the anther on its under surface, as in the *Naiadaceæ*. It is rather curious that flowers that produce large quantities of pollen have not such defences against this danger as those which form but little, while the most complete adaptations are found in the cases of plants that inhabit damp climates.

Many flowers are defended by habit rather than structure. In wet weather they do not open their corollas at all, and not a few, even in fine weather, keep open for a very little while, only a few hours in many cases.

Besides rain, other meteorological conditions are fraught with danger. One of the most commonly occurring is frost; and allied to this is the loss of heat by radiation during the night. The power of resistance to these conditions varies very much, but in many whose constitution makes them peculiarly susceptible to damage thereby there has been developed the so-called power of sleep. The term is no doubt a misnomer, but it has been adopted and associated with certain well-defined movements which the leaves of the plants perform at the close and at the beginning of day. The movements differ very greatly with different plants, but they bring about such a position of the leaves as will protect the upper surface from radiation. Some of them are of a very complex nature, particularly those shown by certain of the *Leguminosæ*, which have pinnate leaves. It is in this natural order that the property of sleep is most prevalent, certain of the *Oxalidaceæ* and their allies coming next to them.

A similar mechanism protects very many plants from excess of sunlight, which is injurious to the chlorophyll. In bright sunshine the leaves assume a position which has been called "diurnal sleep." In it they present their edges and not their faces to the light. In other leaves the chlorophyll corpuscles themselves move, taking up a position on the lateral walls of the cells rather than on the front ones, or so placing themselves that their profile and not their surface is exposed to the sun. In some of the *Algæ*, as *Mesocarpus* and *Vaucheria*, this sensitiveness is seen.

Other protective devices may be seen by studying the adaptations of plants to their conditions of life. Thus the leaves of submerged plants are preserved from being broken by the currents of water by being minutely sub-divided, so that they adapt themselves easily to the motion, and do not oppose a resistance. Desert plants are protected from drought by the development of a succulent habit. Aërial parts of plants, again, are protected in many cases from becoming moistened by water by a deposition in the cuticular layers of the epidermis of varying amounts of wax or resin.—(*Nature*.)

#### NOTES ON HERBACEOUS PLANTS.

**DORONICUMS.**—There are no more showy herbaceous plants than the *Doronicums* at the present time, with their masses of green foliage and bright yellow flowers. They flower from the beginning of April far into the summer, and make our herbaceous border look very gay. *D. austriacum* is very pretty, and should be in every collection of herbaceous plants; it generally throws up its flowers to the height of 2 feet. *D. caucasicum* is also a very useful species, although not such a bright yellow as *D. austriacum*. *D. plantagineum excelsum* is one of the best *Doronicums* with its fine bright yellow flowers.

**GENTIANAS.**—When looking over the herbaceous borders the other day I was greatly struck by the beauty of that very old-fashioned plant, the *Gentiana acaulis*, with its beautiful rich blue cup-shaped flowers, for there is scarcely any flower in cultivation that has such a rich blue colour. *G. acaulis alba* is a lovely variety with white flowers; *G. septemfida* is a

dwarf-growing species, with terminal heads of bright blue-bearded flowers; *G. Andrewsii* is a very showy species from North America, with deep blue purple flowers; *G. Burseri* is very attractive with its large yellow flowers with purple spots, not forgetting that little gem *G. verna*, with its brilliant blue flowers, about 2 or 3 inches high. Most of the *Gentianas* should be in every collection of hardy flowers of any pretension whatever, for they have a most distinctive and attractive appearance.

**DIELYTRA SPECTABILIS.**—At the present time this is very attractive on the herbaceous border. This well-known plant is generally esteemed, both for its usefulness for decorating our greenhouses and conservatories in the early spring, and for our herbaceous border in the early summer. *D. spectabilis alba*, although not generally so well known, is a very handsome variety with white flowers. *D. eximea* is a very pretty dwarf-growing species with drooping red flowers; it is very useful both for the rockery and border.—AN OUTSIDE FOREMAN.

#### ANOTHER NEW BOILER.

MESSRS. STANLEY & TODD's horizontal "V" tubular boiler is represented in the annexed engravings, fig. 84 showing the elevation and fig. 85

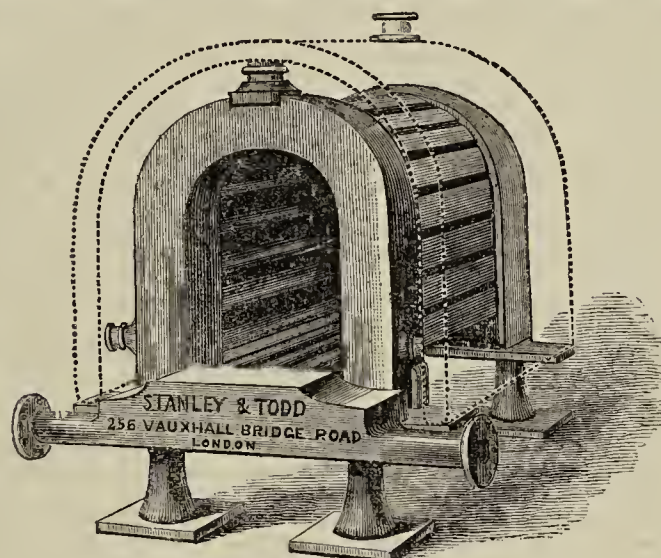


Fig. 84.

the section of the apparatus. As is apparent, it consists of a series of V or wedge-shaped tubes horizontally arranged with water bars of the same shape, the tubes or ribs being further covered with a hood or water jacket. Provision is made for cleaning every part of the boiler, and, as it is in sections, any repairs that may be needed can be readily carried out. In

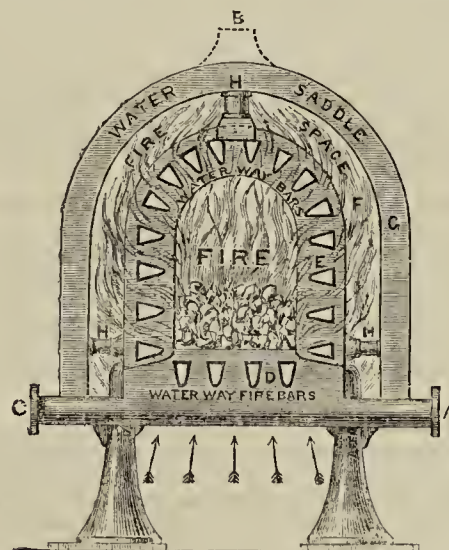


Fig. 85.

arranging the boiler for working brickwork is not required, but without a non-conducting covering there would of necessity be a considerable escape of heat; with it, little or none. Different sizes are made to heat from 500 to 10,000 feet of 4-inch piping. The action of the fire on the different parts is plainly seen, and there can be no doubt the boiler will answer its purpose well.

#### ROOTING THE HEADS OF LARGE CORDYLINES.

THOSE who confine the roots of these plants within certain sized pots have but a poor conception of the strength and rapidity with which they



grow when planted out in a prepared border. If two plants of *C. lineata*, or any other variety, are rooted together and grown on until they fill 10-inch pots with roots, and one is then planted out and the other confined to pot culture, there will be no comparison between their progress. The one planted out will in two or three years attain an enormous size with dark green, broad healthy foliage to the base, while the other will not have foliage half the size and colour. In fact, the appearance of the latter would indicate to all unfamiliar with the plants that they were totally different varieties.

The rapidity of the growth when planted out has been urged as a drawback rather than an advantage, for they soon become too large for structures of moderate size. This is very true, and in large high houses they soon lose their beauty and high decorative value when the stem for some feet at the base becomes bare. Amongst other large plants, such as Palms and Tree Ferns, where the stem is hidden from view, they are most pleasing when the head towers well above surrounding objects for furnishing the upper portion of the house. In such positions I have observed them most striking and beautiful; but, in many other instances—perhaps the majority, for very few have such positions for them—they would have been decidedly more effective if several feet of the stem could be removed and the head again inserted in the border.

These large heads can be rooted with as much certainty as the head of *Dracaena Cooperi*, *D. terminalis*, or any other variety. Those having large plants in the condition indicated above need not fear commencing operations, for large heads with bold foliage for more than 12 feet can be successfully rooted without losing a single leaf after they are severed from the stem. This is decidedly the best time of the year to commence, for in a few months the old roots and stem can be removed and the head with foliage hanging on the ground again planted in its place. When the head is to be rooted it is a good plan to strip off all the old lower foliage that would naturally turn yellow in a short time, so that the plant will be as long as possible before it is again too large for the house, or as a bare stem at the base. The stem for a distance of 14 or 18 inches below the foliage should be surrounded with sphagnum or other moss about 3 inches thick. Below this the stem should be cut fully half through and gradually ringed. It is useless to cut a small narrow nick, for the ring of bark removed should be fully an inch wide. The bark all round the stem must not be removed until a good number of roots has been formed, but gradually extended from time to time. The moss should be kept constantly moist by syringing, and roots will soon be induced to take possession of it. When a fair quantity has been made add more moss and lumps of fibry peat, so as to just keep them covered. After the formation of roots and the stem has been bound once or twice lumps of peat and cow manure may be used as a medium for them and the moss dispensed with. Some of the first roots formed will be stout and as thick as a quill. It will be observed that these have a great tendency to grow downwards, but directly they show signs of extending below the portion ringed the points should be taken off them with a sharp knife, which will induce the formation of fibre. It must be understood that a good mass of roots must be formed before the head is taken off, for where there is a large head of foliage 12 or 14 feet above the roots formed on the stem a good quantity are required to support it. The last head we removed was of the latter size, and a 22-inch pot was not large enough to hold the quantity of soil and roots about the stem. One thing is necessary, when a good quantity of soil has been bound round the stem the head must be supported from above to prevent it snapping. After abundance of roots has been formed, and it is decided to take off the head, it should be cut deep all round for a fortnight or three weeks before its removal to be certain that no support is drawn from the roots. This compels the extension of the roots rapidly in the material provided for them.

When the head is cut off it should be placed in a large pot or tub for a time, and removed, if possible, to some close shaded structure; if heat can be given all the better. This is not essential, but the head becomes established earlier than if left in the house in which it had been grown. When this cannot be done the plant, for such I may term it, should be heavily shaded and liberally syringed for about a fortnight. The plant need not be kept long in the pot or tub, for it will soon be thoroughly established, and may then be planted out in the position it previously occupied.

When plenty of roots have been formed before the head is severed from the stem this plant does not appear to be checked in the least. On the contrary, the foliage produced afterwards will be equally as large and strong as while the process of rooting was going on. When large finely developed heads of these ornamental plants, with their drooping leaves and Palm-like appearance, can be rooted with such certainty and simplicity there is no excuse for the bare unsightly specimens crowding up to the glass we are so accustomed to see.—SCIENTIA.

## THE ROSES AT SOUTH KENSINGTON.

MAY 25TH.

It is always a pleasure to see those reminders of the season which are brought forward at the May shows. The amateur finds that he is waking up to the fact that the time for which he has been long looking forward is at hand, when he hopes to go through his garden and see each morning some beauty expanding, or in the deepening twilight marks the peculiar loveliness that that time spreads over his favourite flower. It is true that these plants and blooms which he sees are not what he exactly wishes, he prefers those which are grown in the open; and while he gladly welcomes

these forerunners of the season, longs for something better still; he eagerly looks out to see if any new Roses are to be noticed, and wonders what their position will be in the exhibition season now close at hand.

Pot Roses have certainly altered their character during the last few years. The gigantic trees of former days have departed. Those giants with which Messrs. Paul & Son and Mr. C. Turner used to fight, like the gigantic troopers of Frederick the Great, no longer find favour; and however wonderful they were as proofs of unwearied industry and skill, they represented to the mass of Rose-growers the unattainable. It would never have been worth the trouble and expense for an amateur to grow these huge plants, whereas the smaller plants, with two or three dozen blooms, represent a species of culture to which, if so minded, he may with greater ease attain. Moreover, there is after all more real beauty in these smaller plants, for although carefully trained they have not the appearance of ever having what the larger plants had. Is it not possible, too, that as these huge plants have been left high and dry the competitors may increase in number? Formerly it was felt that with such competitors in the field it was hardly possible to do anything against them, whereas with these smaller plants the field is open to other growers. One at least has put in an appearance this year, and more we hope may follow.

Amongst the pot Roses (I do not mention the names of exhibitors, as those were given last week) were *Centifolia rosea*, excellently bloomed and evidently an excellent pot Rose. *Sunset* and *Perle des Jardins* were shown side by side, giving proofs of the points of similarity and also their real difference, the colour of the former being much deeper, a rich *Madame Falcot* sort of colour; it will probably be what is called a fine weather Rose. Some have thought that it will be too thin, but I hardly think it is open to this fault. *Comtesse de Camando*, a fine dark Rose let out in 1880 by Levêque, but which is not often seen on exhibition stands by reason (Mr. Geo. Paul being my informant) of its being a very late Rose. *White Baroness*, evidently a good pot Rose, liable, however, to the charge of being too thin; *Lord Frederick Cavendish*, undoubtedly a fine bright high-coloured flower; *Madame Eulalie Fontaine*, a very beautiful Rose, well formed, rich rosy crimson, with violet sheen, quite distinct; *Professeur Edouard Regel*, a bright *Duchesse de Caylus* sort of flower, and one likely to be very useful.

Amongst the cut Roses were *Madame Lefebvre Deplace*, bright pink, something of the build of *Madame Charles Crapelet*, with large fine petals, well imbricated, bright pink, with a beautiful glassy sheen over it. *Souvenir de Léon Gambetta*, pink, with deeper centre; *Francisca Reve*, a flower let out in 1883 by Schwartz, a bright cherry red, said to be very vigorous, and certainly with a rich perfume; it would appear to be one of those Roses which are overlooked in the crowd of distinguished strangers which visit our shores every year. *Prosper Langier*, another good Rose (one of *Eugène Verdier's* 1883 lot), a brighter *Maurice Bernardin*. One looked in vain for what I was very anxious to see, *Clara Cochet*, which is said to be the best that *Lacharme* has ever sent out, and the finest Hybrid Perpetual yet raised. When we consider what *Roses Lacharme* has sent out, and call to mind *Marie Baumann*, *Charles Lefebvre*, and other fine Hybrid Perpetuals, a Rose that is to beat all these must indeed be a marvel. That *Lacharme* thinks highly of it may be inferred from the fact that it was let out by him in dormant buds at 25 francs. Another Rose we wanted to see was the new American sport from *Catherine Mermet*, said to be pure white and the finest white Rose in existence. If it should be white, and of the build and substance of its revered parent, it will be a great acquisition.

Such, my masters, are a few of those beauties, that like the *hors d'œuvre*, may whet your appetite for the coming feast. Is it to be a full one or not? Various are the opinions formed. Some write of want of vigour, others of shoots going blind, while others are confident we are to have a Rose season at last. The late rains have done wonders, and, as we are hoping to get fine weather, I see no reason why we should not have a good one. We have not had the cold wave of May 20th to 24th, and we trust all fear on that score is at an end, and we may look hopefully forward to a good feast.—D., Deal.

## FIRM SOIL THE BEST.

In my opinion sufficient attention is not given to making all soil in which roots have to form firm. In potting plants the soil is often merely thrown into the pots, given a shake and perhaps a gentle press down, and potting is supposed to be finished. A large number of plants may be potted in a given time in this manner, but anyone who likes to note the result of this work will not, I think, be favourably impressed by it. There is no close rooting in soil of this kind, as those formed are long, rambling, and fibreless. If at any time the soil becomes slightly too wet it is a long time in gaining a proper condition, and in the meantime the plant has got into bad health. Altogether, there is nothing that will cause a plant to grow indifferently so soon as loose potting. When the soil is made firm, however, the case is quite different. The roots are short and robust; they branch in all directions, and the soil is always sweet and healthy. In potting to secure the best results the soil should always be made very firm. In dealing with small pots the soil can generally be pressed down firm with the fingers and thumbs, but when large pots are being filled a blunt stick should be used as a rammer. In the case of potting Heaths, Azaleas, and other hardwooded plants, great attention is generally given to make the soil exceedingly firm, and if it takes a firm soil to induce choice plants to succeed I am sure more common ones would pay handsomely for the same attention.

In potting Pines, or any kind of fruit, the same rule is generally



observed in making the soil firm, and nothing short of this would agree with them. Fruit borders are always best when very firm, and the most roots are to be found in those which are submitted to a great deal of treading during the year, and if a tree is in bad health with the roots in a loose soil nothing will improve it quicker than treading the soil down as firm as it is possible to make it.

Kitchen garden crops are also benefited by being grown in firm soil. Onions, when grown in loose material, never bulb well but form thick necks, and they come best when the soil is rolled immediately after sowing, and they are also benefited by treading them on each side of the rows during the early stages of their growth. Celery will seldom "bolt" or fail if in very firm soil. It is an excellent remedy for clubbing in Cabbage, Cauliflower, and plants of this sort; and a fine soil is also one of the best means we know to keep off the grubs from the roots. We are as particular in having the soil trodden down firm amongst these, and also amongst Carrots, Parsnips, &c., as we are to hoe or weed them, and of all our ways of inducing plants to succeed none assist so well as firm soil everywhere.

Those who have not given this matter practical attention may be inclined to think that the looser the soil is for Carrots, Parsnips, Beetroot, Salsafy, and other deep-rooting plants, the longer and finer will the roots become; but this is a mistake, as in such soil they only fork and throw out side roots, whereas in firm soil they go straight down, are quite fibreless, and turn out beautiful and clean.—A KITCHEN GARDENER.



#### HARDY FRUIT GARDEN.

THE late spring kept back growth so much that we were much later than usual in beginning the early summer pruning. This pruning is done principally by nipping off the young growth with the finger and thumb, for which reason it is usually termed pinching, the leading shoot of each stem or branch being pinched to about 9 inches or a foot, and the side or lateral growth to three or four leaves from the base. No pinching should be done till the fruit is set and is swelling freely. If necessary there should also be some thinning of new growth as the pinching is done if the spurs are at all crowded, in order that light and air may act freely upon every part of the tree. A moderate crop of really fine fruits is infinitely preferable to a crowded one of small fruits, and that should be our aim in all we do in fruit culture. When the fruit is swelling the borders or soil in which the roots are established should have frequent soakings of sewage or other liquid manure. Preference is given to sewage because of the daily supply to be had from every household, whence it comes to hand in a perfectly safe condition for immediate use. This cannot be always said of manure prepared by mixing guano with water, for we have known the fruit spoiled and the trees half killed by an overdose of it. Do not forget to use sewage freely now among Strawberries, Raspberries, and all bush fruit, to which it is hardly possible to give too much of this valuable cheap fertiliser till the fruit begins to ripen. In doing this we should understand that we are working for future seasons as well as for the present one, the regular use of sewage during the season of active or rather lively growth tending to promote robust health, and thus to secure a full development of the crop of fruit, of foliage, branch, and bud. How can we rest content with anything short of this in fruit culture? Aim high, say we, and achieve much; also let every season mark some advance in knowledge, that golden knowledge only to be gained by experience and some improvement in practice. Pinching may be done at once to the young growth of Red and White Currants; see also that the leading shoots of Currants trained to walls or fences are made fast at once, or the growth may be broken off by the first storm of wind and rain. Pears, Plums, some Cherries, and Apricots should have full attention to all necessary pinching and training forthwith. Nip off the tips of leading shoots now, and at mid summer you will have another good break both of leading and lateral growth. Disbud Peaches and Nectarines, keeping only enough stout lateral growth for the fruit crop of next year. This is a point of culture requiring sound judgment, the general tendency being to tie in too much wood, and crowded growth is generally undersized, and the foliage is liable to become infested by red spider in July and August. If your young trees are very robust encourage rather than check the growth. The space covered by such young trees in a couple of years is absolutely marvellous. The leading branches will attain a length of 6 or 8 feet in a single season. The lateral growth, too, will be so rampant that it will often have sub-laterals of not mere abortive growth, but really fine stout fruiting wood well set with triple buds. If you would have fine fruit you must have robust growth. How can you expect large fruit upon the straw-like wood so common to half-fed badly managed Peach trees? Keep the soil about the roots well stored with fertility. Keep the new growth sufficiently far apart to admit light and air among it freely. Keep the foliage clean by frequently bringing a keen eye, a willing hand, a stout arm, a good syringe, and plenty of clean water to bear upon it, especially upon the under side of the leaves. Above all things do not overcrop. Such a thing as crowded fruit in Peach and

Nectarine culture ought never to be seen; a fruit to each square foot of wall space would afford us a large number of fruit, and such fruit too! The sight of a full-grown tree covering, say, 300 square feet of wall with about that number of Peaches upon it, each fruit closely approaching the size of a cricket ball, is not like the Waltham Roses, "a thing to see once and dream of for ever," but a thing to try and copy in our own practice, a standard of excellence to follow, a worthy object of ambition, and remember it is a possibility that falls within the scope of most gardeners.

#### FRUIT FORCING.

**VINES.—Early House.**—When the Vines are cleared of the fruit give the inside borders a thorough supply of tepid liquid manure. This will help to plump the buds and encourage root-action so essential to activity of the laterals—the best preventive of premature ripening of the foliage. Keep the ventilators open constantly, even in cold weather a circulation should be insured. Syringe thoroughly to cleanse the foliage of dirt and insects, especially red spider, and repeat occasionally or as found necessary to keep the old or main leaves healthy. Fresh laterals will soon be produced, and cultivators should maintain an even growth all over the Vines, pinching the gross growths and encouraging the weak, keeping them clear of the principal leaves which nourish the buds at their base. The mulching or covering having been removed from the outside border, with just sufficient of the lighter part left to protect the roots, a good watering with liquid manure may be given, but the recent rains having been general this will only be needed where none has fallen. Avoid heavy mulchings, and nothing is better than a couple of inches depth of fresh stable manure.

**Second Early Houses.**—Vines started early in the year will have the Grapes well advanced in ripening. Maintain a circulation of warm, rather dry air constantly, increasing the ventilation early. Keep the floors, &c., well damped on hot days with a view to check excessive evaporation, allowing the temperature to fall to 60° or 65° at night, with sufficient ventilation and warmth in the pipes to prevent moisture condensing. If there is likely to be any want of finish allow the Vines time by giving as long a rest at night as possible. If there is any doubt about the roots lacking moisture examine the border, and, if found necessary, give a thorough soaking of water in the morning of a fine day, and when soaked in mulch with a little light material. This will probably be sufficient to keep the border moist until the Grapes are cut; if not, it must be repeated. Moderate moisture will be essential to the health of the foliage, hence damping the floors and stages must be resorted to occasionally, there not being any fear of its damaging ripe Grapes at this season only it be accompanied with air, besides the moisture will assist in keeping the Grapes; and to prevent colour being taken out of Hamburgs a double thickness of pilchard nets should be drawn over the roof lights. Allow a moderate extension of the laterals to encourage root-action, but keep gross laterals well in hand so as to cause an equal distribution of the sap. When ripe a minimum temperature of 60° will be sufficient.

**Midseason Houses.**—Vines in these will be in various stages according to the time of starting. Those that have stoned will be swelling the berries fast, and the borders should have a soaking of tepid water through a good surface mulching, or if the Vines are not very vigorous and carrying heavy crops liquid manure will be necessary. The drainage being good, the watering, whether with water or liquid manure, will need to be continued at fortnightly intervals until the Grapes are somewhat advanced in colouring, when it must be stopped, yet the border must not be allowed to become so dry as to affect the foliage injuriously. Have a little ventilation constantly at the apex, and ventilate freely in the early part of the day, closing early with sun heat and a genial condition of the atmosphere. Fire heat will only be necessary to secure 60° to 65° at night, and 70° to 75° by day, keeping through the day at 80° to 85°, and closing sufficiently early to run up to 90° or 95°. This will insure the berries swelling to a good size, and with a free circulation of air a good finish may be secured.

Grapes stoning should have a regular temperature of about 65° at night, admitting air in good time, so that any moisture will be dissipated before the sun shines powerfully upon the house. Allow a moderate lateral extension, but avoid overcrowding and feed with liquid manure or water through a good mulching at fortnightly intervals according to the requirements of the Vines.

**Early Muscat Houses.**—The fruit in these is now ripening. Maintain a dry condition of the atmosphere as compared with Black Hamburg houses, but avoid great aridity, or the foliage will fall a prey to red spider. Muscats require time to ripen and assume that amber colour so much prized. Being gross feeders, do not allow any lack of moisture in the borders, but feed well either with tepid liquid manure or tepid water through a rich surface mulching. The supply of water to the roots will in some measure compensate for the drier condition of the atmosphere. Maintain a circulation of air constantly, preventing the moisture condensing on the berries by sufficient warmth in the pipes to insure a changing atmosphere. Lateral extension is the best safeguard at this stage against shanking along with a steady temperature. Avoid sudden fluctuations and depressions. Keep the night temperature at 65° to 70°, 80° to 85° by day with a little sun, and 90° to 95° with it in full force. Ventilate early, and with the sun's increase be regulated, and so with its decline, reduce early, securing as long a day of ripening from sun heat as possible. The old leaves of Muscats are very liable to be scorched under sudden changes of atmosphere, particularly so after a dull cold period. In very bright weather a single thickness of tanned net should be drawn over the roof lights, which, without impeding too much light, will have



the desired effect, especially if air is given at night to prevent the condensation of moisture.

**Late Houses.**—The Grapes in these will now have flowered, or late varieties may still be in flower, in which case artificial impregnation must be resorted to, operating with Black Hamburg pollen. The late Hamburgs being now in flower will be eligible for this purpose. Allow the laterals to extend until the available space is fairly covered with foliage. Avoid overcrowding, especially of the principal leaves. Syringe after flowering to cleanse the bunches of the remains of the flowers, and set about thinning as soon as the berries are fairly swelling. Select tapering and medium-sized bunches, and thin well out, leaving the large-berried sorts about an inch apart, and others according to the sizes they are likely to ultimately attain, which must be left to the judgment of the grower. Late Grapes, however, should be thinned more severely than midseason varieties in order to admit of air having free access to the interior of the bunches, and the readier removal of decayed berries. Allow a good rise with sun heat after closing, closing at 80° to 85°, and rising to 90° or 95°. Ventilate early, or between 70° and 75°, and increase with the advancing sun heat. Leave a little ventilation at the top of the house at night to prevent excessive condensation. Syringe available surfaces in the morning, and again at closing time. An occasional sprinkling with liquid manure will do much to keep down red spider, and will contribute much to the health of the Vines. Surface dress inside borders with fresh horse droppings, little and often, as too much ammonia is calculated to injure the foliage. Give inside borders a thorough soaking with tepid water or liquid manure as may be considered necessary on account of the crops and vigour of the Vines. Outside borders may have a thin covering of open manure, but water will hardly be necessary, except where no rain has fallen.

**CUCUMBERS.**—Plants in houses that have been in bearing since the beginning of the year may be cleared out, and the house cleansed preparatory to planting with Melons for a late crop. If, however, the Cucumbers are still insufficiently supplied from pits or frames, and the Cucumbers being fairly healthy, they may be kept in fruiting some time longer by removing the surface soil with a small fork, and replacing with some lumpy loam, afterwards surfacing with decayed manure, giving a good soaking of tepid water, and afterwards following with liquid manure. Thin out the old growths, and encourage young in their place. Shade from powerful sun, syringe both ways in the morning and early afternoon, and damp well down before nightfall. Admit a little air at 75°, increasing with the advancing sun, keeping at 85° through the day with sun, and close early so as to run up to 90° or 95°. Fire heat need only be employed to prevent the night temperature falling below 60° to 65°, and to insure 70° to 75° in the daytime. Plants in pits and frames should be ventilated from 7.30 to 8 A.M., and in the hottest part of the day a slight shade from fierce sun will be beneficial, and keeping through the day at 85° to 90°, close at 85°, increasing 5° to 10° with sun heat. Keep them watered as required, about twice a week will be necessary in bright weather, and damp overhead on fine afternoons. Avoid overcrowding the foliage, thinning well, keeping up a succession of bearing wood, removing bad leaves, stopping one or two joints beyond the show of fruit, and avoid overcropping. If straight fruits are wanted place them in glasses or pieces of deal nailed together so as to form open-ended troughs about 3 inches wide.

**MELONS.**—Plants in flower should have a little air constantly, a free circulation on fine days, fertilising the blossoms as they become fully expanded; and when a sufficient number of about equal size are set upon a plant remove all the others and all flowers, three or four fruits being as many as a healthy plant can bring to a good size, overcropping being fatal to quality and very often of the fruit not arriving at maturity, but of ripening prematurely. Plants swelling their fruits should have liberal supplies of tepid liquid manure and additions made to the ridges or hillocks of fresh soil as the roots protrude, and it should be warm. Young plants in pits and frames with the shoots trained over the surface of the beds should be thinned out to four, two being taken to the front and the other to the back, keeping the laterals rubbed off to quite 6 inches from the stem, and pinching the main shoots when 12 to 15 inches from the sides of the pits or frames. The laterals will show fruit at the first or second joint, and the flowers being fully expanded impregnate them about noon on a fine day, leaving a little air on constantly to prevent the condensation of moisture on the flowers, a moist close atmosphere being fatal to a good set. Pinch out the point of the shoot one joint above the fruit at the time of impregnation, and after three or four fruits are set and swelling on a plant remove all other fruit and blossoms. Keep the laterals closely pinched, and thin them if likely to crowd the principal foliage. Afford weak liquid manure, but keep it from the foliage, and sprinkle the plants in the afternoon of fine days, closing about 3.30 to 4 P.M., or so early as to rise to 90° or 95°, and ventilate early in the day, or from 7.30 to 8 A.M., keeping through the day at 80° to 85° or 90°, and reduce the ventilation gradually. Keep a sharp look-out for aphides, and fumigate on two or three consecutive evenings moderately—an overdose doing great injury. Shade the following days slightly if the weather be bright, and always have the foliage dry when fumigating. If canker appear rub quicklime into the affected parts until they are dry, and repeat as occasion requires, being careful to keep water away from the collar. Red spider will not appear if the plants are kept properly moist.

#### PLANT HOUSES.

**Justicia calytricha.**—This is perhaps better known in gardens as *Justicia flavicomis*, and is undoubtedly the best and most useful yellow-flowering plant in cultivation for purposes of decoration during the winter

and spring. If pushed forward in autumn in a temperature of 60° it can be had in bloom early in January, and will continue flowering until May in any structure where the temperature does not fall below 45°. The plants should not be thrown away after the first flowers fade, for they quickly come into flower again, and are more beautiful than is the case at first. This year only have we discovered that they flower even a third time, and plants that did duty in January were again in full bloom through April and May, and had much larger trusses than the first or second time. Those who have not the temperature named may grow it successfully if they can give it a night temperature of 45° to 50° during the winter. Plants for decoration in 5 and 6-inch pots should be raised from cuttings annually. These are quickly produced if a few plants are pushed forward in brisk heat after flowering. The cuttings formed of young growths strike freely in sandy soil, either singly in small pots, or a number may be placed together, well watered, and then covered with a bellglass, handlight, or be placed in the propagating frame. If inserted together they must be potted singly directly they are rooted. As soon as they are established in 3-inch pots the points of the plants may be removed to induce them to branch. The plants are not pinched more than twice, and are placed in their largest pots as soon as a good number of roots has been made. When well established they may be grown in cold frames through the summer months, closing the frame early in the afternoon. By the middle of September the plants will be dwarf and sturdy, not more than 1 foot high, and should be given a light position in some structure where the temperature named can be maintained. These plants do well in a compost of fihry loam three parts, the other part being composed of leaf mould and manure, about one-seventh of the latter with the addition of a liberal quantity of sand.

**Toxicophlœa spectabilis.**—This deserves to be more generally grown for flowering at this season of the year than is the case. It is said to require cool stove treatment, but such is not the case, for it can be grown well in a warm greenhouse or where the temperature in winter does not fall below 40°. While making its growth it is benefited by a close moist atmosphere; such treatment as generally given to Azaleas will suit it admirably in this respect. It will do well in the conservatory where flowering plants are kept during the winter, for such structures are generally a little warmer than the greenhouse. When well grown it will make shoots each season about 18 inches in length, from which it produces terminal trusses of small white highly fragrant flowers, and smaller trusses from the axils of the leaves for a foot or more down the growth made. The plant is of upright growth, and it does not branch freely without due attention is paid to pinching the shoots of young plants. When the plant has attained a fair size the shoots can be tied out to form a bush, or it can be well cut back after flowering—that is, when it has attained a sufficiently large size. It is propagated by cuttings and layers when the wood is in a half-ripened state, but being of a woody nature striking cuttings is rather tedious, and it is better to purchase the plants required. It does well in a mixture of peat, loam, and sand, the two first in equal proportions.

**Rogiera gratissima.**—This beautiful and useful plant should be planted out in every warm greenhouse or conservatory, for it will produce in this position abundance of delicate pink flowers, which are very fragrant during the summer and winter. The flowers are very useful in a cut state either for vases or bouquets, and this plant yields its flowers over a period of several months, for when one crop is cut the plant breaks into fresh growth and flowers again. Cuttings of the young shoots strike freely in sandy soil if covered with a bellglass and plunged in gentle bottom heat and shaded from the sun until they are rooted. It flowers freely in a small state, but these should be removed as they appear, to induce the plant to make growth and become bushy. It should be grown in an intermediate temperature until it attains some size and strength, when it is better planted out, and yields more flowers than when kept under pot culture. Care must be taken while growing it on not to allow it to suffer by insufficient root room. A liberal supply of water is also needed while in active growth; in fact, the soil should never be allowed to become dry at its roots; a suitable compost being loam, peat, and leaf mould in equal proportions, with sand added.

**Rhynchospermum jasminoides.**—Although this old and useful plant grows well under greenhouse treatment, it nevertheless makes much greater progress when assisted by gentle heat to make its growth. Plants that have done flowering may be repotted if they need more root room; a small shift only should be given, and the pot used should be liberally drained. The soil, which may consist of peat and sand, or loam, sand, and about one-seventh of manure, if the latter a little charcoal may be added. While growing a liberal supply of water should be given both at the roots and over the foliage. Young plants in heat make growths many feet in length in a season, which is desirable if they are to be grown into a specimen size as quickly as possible; under cool treatment these growths are not so freely produced. A little shade is beneficial while the growth is being made, then full sunshine should be given to ripen and harden the wood, the plants rested in a cool house and carefully watered at their roots.

**Grevillea robusta.**—Any plants that have become too large for ordinary decoration in 5 and 6-inch pots should not be thrown out, but planted to afford greenery for cutting for associating with flowers. The Fern-like leaves of this plant are most serviceable for this purpose, as they last well in a cut state even after they have been packed and have travelled a long distance. A suitable place for them is against a wall at the back of the greenhouse, Peach houses, or amongst large plants in the conservatory. If possible they should be planted out in a cool structure, for the leaves are more lasting than when cut from a close moist house.



# THE BEE-KEEPER.

## NOTES ON BEES.

### QUEEN AND DRONE-RAISING.

Now that the season has come when bees will require attention, not only for the purpose of keeping up the strength of every hive, which is the best and only means to obtain heavy yields of honey, but for the purpose of using the proper means to have every stock in order for next season, two essentials towards that important point are absolutely necessary. Young, fertile, and prolific queens raised from the best strain of bees of any of the pure races—Syrian, Cyprian, and Ligurian—are improved by crossing, but the Carniolians with me do not seem to be improved by crossing. I cannot say they are impaired, but during the eight years I have had them now the pure ones have given every satisfaction. Next to the careful selection of queens come the drones, which must be selected from another strain or hive having all the good qualities bees should possess. The moment this hive is of sufficient strength some drone comb should be inserted in the centre of the hive, but to be removed after the drones are hatched, either to the extreme sides or better altogether, as excess of drone combs is unnecessary and is sometimes injurious. To insure success it will be better to remove queens and selected drones to a distance free from the influence of other drones. Where that cannot be carried out more hives should be chosen to raise drones, so that they will be numerous enough to insure the proper fertilisation, while at the same time the drones of hives not desired to wed with the selected queens should be kept under. Whenever the selected drones are hatched—which should be, if possible, eight or ten days before the queens—the hives containing them should be fed, so as to have them vigorous and much on the wing, and if it can be so managed to have these drones along with a young queen all the better. We have had two summer-like days, but two only, the 6th and 7th May. The former day the temperature rose to 65° and the bees carried well. The latter date the temperature rose to 70°, but the bees are not quite so active and look as if a change was near.

I was under the impression that all my hives were in possession of their full breeding space, but on the 6th of May I discovered one evidently in a state approaching to swarming. On examining it I discovered it was in only two square Stewarton boxes. The third one was given it, and the bees at once took possession, and comb-making commenced rapidly, filling its box with comb. Early in June most of my hives will be ready for supering. The Charlock will be in bloom, and if the weather be fine supers will be rapidly filled. Increased room will be given in supers only. The stock hives with their broody queens will cause the most of the surplus honey to be stored above. What is not will be amply sufficient to tide the bees over till the next summer, as the last year's honey has done in this, bringing the bees through one of the most untoward and protracted seasons on record to swarming point, and in a state to store surplus honey without so much as removing a single cover from one of them. What say our manipulators to that?

Should any of my stocks swarm through any unforeseen circumstances I will not thwart their inclinations, but will if possible join two together, transferring supers and perhaps part of combs to the swarm which shall occupy the site of old stock, and it shall get the task of raising one or more queens.

I have penned the above in anticipation of what is likely to happen, and the mode of management described is what I have previously found the best, trusting it will be found to be the same by your bee-keeping readers who follow on the same lines.

### STATE OF MY HIVES.

On the 19th of May we enjoyed a fine day, the first one for a fortnight past, the temperature rising from 32° to 60°. We have not had severe frosts yet, although the weather has been far from being genial. Vegetation has been almost at a standstill, and bees have had a hard time of it. Many have succumbed altogether: the keen winds penetrating to the interior of their hives prevented their progressing with breeding, and a dwindling away or a general exodus has been the result in fed hives.

That my own bees have had an entire immunity from the destructive effects of the cold I can scarcely think, but I cannot detect any serious diminution of their numbers, as is certainly the case with my neighbours over the hedge, who had to feed to keep them alive, which liveliness has brought about to appearance the death of at least a third of their number. My Carniolians have kept withindoor during every cold spell, and work with extra vigour whenever a warm day occurs, which have been few and far between. On the 20th ult. the temperature was down to 47° with rain. The alighting boards and boards of ventilating floors are covered with the sealings of drone cells. This is what every bee-keeper rejoices to see, indicating

as it does that swarming time is drawing near or that they are in readiness for supering; but the weather is suitable for neither, and the honey season is at a distance yet.

With large hives and healthy prolific young queens there is no danger of the queen being crowded out, but with the teeming population there is a danger of the stores becoming exhausted, resulting in brood-drawing and starvation. The former will take place, even although a scarcity inside is not imminent; but when a continued and protracted spell of cold weather continues at this season it is almost sure to occur.

To prevent such a calamity and losing all prospects of a honey harvest, feeding must be resorted to sufficiently to prevent disaster and disappointment to the bee-master. I have proved that it is a mistake to feed at a season when it is fatal to bee life outside the hive, but we hope that is past; but whether or not, the bees must be fed now if this dull weather continues. We frequently have to do so till the end of June, so do not withhold the syrup till then if required.

### A DAY'S OUTING.

In response to a request of Miss C. R. Macdonell of Glengarry (niece of the late Lieut.-Col. Macdonell, who held the gates of Hugoumont at Waterloo) I went to Rothesay, Island of Bute, on Saturday, the 15th of May. The temperature of the morning was 35°, with a strong north wind, and was a most unpleasant day for an invalid to attempt the manipulation of bees one way or another. Loch Gaoith means "Windy Loch," and certainly we experienced it in full force. To take the combs from some Renfrewshire Stewarton hives of nine years' standing and refit the frames with comb foundation before an audience was ostensibly the work that was to be done, as well as to overhaul some double-cased frame hives having their combs parallel to the entrance, which from the glowing description by the vendor should have been first-rate. I confess that I have an aptness to discover faults more readily than virtues, and in this case it was no exception to the rule, and as I consider the experience will be interesting and instructive to your readers will describe things exactly as I found them.

The first hive that arrested my attention was a Renfrewshire Stewarton arranged in detail as that gentleman has long taught. The only improvement I suggested was a ventilating floor and a slight alteration in the covering of hive proper, dried grass in sufficient quantity, but not overmuch—just what would give results similar to the nest of the wild bee, mouse, or the hedgehog, not to imitate a rag store or a rick of hay in a position to draw moisture, and be transformed into a muck heap in a short time. There was a departure with all the other hives from the orthodox style. The outside cases had the proverbial plinths and flat roofs, which were to be of so much importance, according to those who, perhaps, could make no other sort, at least to pay them so well as did these flowerpot carriers. Although the hives had about 15 inches of doorway, these outer cases had only about 3 inches wide by three-eighths high—one of the greatest mistakes that can well be. The flat roofs were covered with zinc, and to make it lie close was thoroughly nailed in perhaps a hundred different places, every nail hole being an aperture to take in water. These, with the plinths and the case resting upon the floor instead of projecting over it, must, from their appearance, have had the surroundings of the hives proper in a pitiable state with damp. Thanks to the single-cased covers and hives, the latter standing free from the case was not affected by the damp, and the result is, with all the drawbacks, these hives are crowded to the door with bees, and occupy two 9-inch Stewarton boxes, are ready for swarming or supering, and have neither been fed nor otherwise interfered with.

After getting through with the Stewarton hives I went to the frame hives, but these were in a very different state to that of the Stewarton ones, all being dead, or nearly so. The frames had the orthodox three quarters of an inch bars, that gives the bees so much extra labour propolisising quilts, building combs above the top bar, and past the end ones, which makes manipulation so difficult, irritating the bees to the greatest extent, and killing many of them. In all the hives I ever possessed or made I never had or knew of a single comb being built between the hive wall and the frame.

But even worse than that, the frames were not all supplied with distance pegs, following the advice given by our contemporary to have the distance between the frames wider during one season than at another, so that instead of having one comb to every frame some of them had two, neither of which could have been of use to the bees had they survived. I advised the immediate burning of these hives, and to look well at the contrast between them and the Stewarton ones. The day was cold, and the hills carried a heavy mantle of snow, so I left for lower and more genial ground, glad to get away from the cold, the mismanaged, and worthless hives, but not before warning their owners how to act in the future, and to keep everything in its place, particularly that of slides and



frames to  $1\frac{1}{2}$  inch from centre to centre, and have no frames less in breadth than  $1\frac{1}{4}$  inch.

In the town I met with some old and intelligent bee-hands, who last year had taken much honey from their Stewartons, one to the extent of 200 lbs. from each hive of honeycomb, but from the "Combination hives" not more than 10 lbs. I may here mention that combination means nothing more than the name. I did not require to give advice in these instances, because the whole of these persons have discovered the mistake in attempting to keep bees with profit in these hives. At this place last year, while the bee-keepers were so successful with the Stewarton hive, a minister had a number of Combination hives, but got 4 lbs. only from each hive. One man exclaimed that "they minister bodies had been the direct cause of leading beginners astray, and into needless expense, by attempting to teach that they were unacquainted with, but who had been goaded on to this by those interested parties who had made them their tools." All this I did not endorse, and could not. There was much truth in the statement, but I am intimately acquainted with many clergymen who are very successful and clever bee-keepers, but these gentlemen are, as a rule, not so conspicuous in print on bee matters as we should wish to see.

On my way home I got information of a person who had fourteen Combination hives, and only one survives. So much mortality amongst bees located in hives of that construction cannot be wholly due to the hive. The management, or mismanagement, surely must be at great fault. Doubtless shallow hives, and their having their frames across the entrance, are not so suitable for bees as the Stewarton hive, and we have good proof of that when we see both sorts of hives managed alike and the Stewartons coming out strong at a date, while the others in the frame hives are dead. Still I know that even these defective hives could be better managed, so that there would be less per-centage of deaths than has been with them this season, but cannot advise their use. The tiering system is coming more and more to the front every day, and is generally adopted by intelligent bee-keepers; but I must protest against the name "new" being given to it, as is the case in the *British Bee-keepers' Record* for this month. However, the aggressor in this instance is, like many more bee-keepers of the present day, without experience, but they must be kept in check all the same.

"F. J. J. B." has had difficulties in wintering his bees in the Stewarton hive, losing three times as many bees from it as from the Pettigrew hive. Without having fuller particulars about the hive in question it is difficult to say the reason of so much loss of bees. Glass is doubtless a bad thing in hives, but all that is of it in the Stewarton hive should not seriously affect the bees when you have a ventilating floor to it.

The proper way to winter bees in the Stewarton hive may be summed up in the following:—Plenty of bees and stores, thoroughly protected from wet, and the tops of the hive well covered with dried grass, and better that the sides be also protected, so that the hive is kept at a uniform temperature. The bees should have an ample doorway, the slides on the top of the hive should be withdrawn. If these things are attended to no ill should befall any Stewarton hive during the most severe winter. If there is a paucity of bees the combs will get mouldy, as they draw damp from the atmosphere. If there is a scarcity of meat the bees will be restless and fly much, the same thing occurs if they are kept too close. We shall be glad to hear further particulars from you, as reports in cases of failure are of as great importance towards the furtherance of the science as are those of success.—A LANARKSHIRE BEE-KEEPER.

#### TRADE CATALOGUES RECEIVED.

Thames Bank Iron Company.—*Illustrated List of Boilers, Stoves, Heating Appliances, &c.*



## TO CORRESPONDENTS

\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles in-

tended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**TO CORRESPONDENTS.**—We desire to assure those of our correspondents whose letters and communications are not promptly inserted that they are not the less appreciated on that account. Our pages are practically filled several days prior to publication, and letters arriving on Wednesday morning, except by special arrangement, are invariably too late for insertion. The delay in the publication of some of these is not of material importance, but reports of meetings and shows held a week previously lose much or all of their value if not received in time to appear in the current issue.

**Grubs in Strawberry Bed (W. G. B.).**—The specimens you sent last week are the larvæ of the large crane fly, *Tipula paludosa* or *gigantea*. They are very difficult to eradicate.

**Caterpillars on Vines (J. C.).**—The caterpillars sent appear to be the larvæ of the Poplar Lutestring moth (*Cymatophora Oo*), which is not abundant. It has been observed that some larvæ that feed on the Poplar and Willow will also feed on the Vine.

**Books (A Lover of the Journal).**—We doubt if there is any book that will exactly suit your friend. Write to Mr. Upcott Gill, 170, Strand, London, on the subject, who publishes two or three works that might possibly be useful.

**Canvas Protector (T. A.).**—Without at least a drawing we cannot form an opinion on the matter. Exhibit a sample at a good local horticultural show, or at the Royal Horticultural Society's Provincial Show, to be opened at Liverpool at the end of the month.

**Pelargoniums Unhealthy (S., Carlisle).**—The plants were no doubt affected with the "spot" before being removed from the frame, but the leaves have turned yellow mainly through the check the plants received by their sudden transference from a moist to a dry atmosphere. They have perhaps also been too dry at the roots. Give them some clear soot water.

**Vines (J. G.).**—You supply no information whatever to enable us to form an opinion as to the cause of the disease of the Vines, and we can only suggest that they received a sudden check by cold during the early stages of growth. Particulars as to soil, temperature, and treatment would have been of great service in the consideration of the case.

**Dendrobiums (R. P. O.).**—One of the most effective Dendrobiums for exhibition at this time of year is *D. thyrsiflorum*, which with *D. Devonianum* you already grow. To these may be added any or all of the following:—*D. Bensoniæ*, *D. chrysotoxum*, *D. chrysanthum*, *D. crystallinum*, *D. Deari*, *D. Falconeri*, *D. Jamesianum*, and *D. nobile*, which can be had in flower now, are free and last well.

**Peaches and Nectarines Falling (W. A.).**—The most likely cause of the young fruit dropping is immature wood, the buds not being properly developed and the flowers imperfectly fertilised. The trees appear to be planted much too close together, and consequently make growth that does not ripen. Keep the growths fairly thin, so as to admit light and air; and in autumn, when the leaves part freely from the trees, lift carefully, and lay the roots in fresh loam nearer the surface.

**Weevils on Roses (W. Williams).**—Your Rose is attacked with the voracious weevil *Otiorynchus sulcatus*, which appears to be too abundant this year. If you quietly spread a sheet or something of that kind at night and shake the pests off the Rose you will catch many of them. They feed at night. If you clean the tree you may perhaps prevent others ascending by affixing cotton wool round the stem and smearing it with tar; or perhaps, better still, with a mixture of resin and sweet oil, two-thirds of the former melted, and one-third of the latter, smearing it along the base of the wall also; it keeps moist, and the weevils will not travel over it.

**Wood Ashes—Chemical Manures (F. J.).**—We should certainly not advise any "poor man" nor rich one either, to give the price you name for the sample of ashes before us for manurial purposes. You had much better purchase a little muriate or sulphate of potash, whichever you can obtain the most readily, and use equal parts of that and bonemeal, adding a fourth part of sulphate of ammonia to the bulk, and you will have a mixture that will do good to most trees, crops, and plants that need assistance. We do not say it is the best that can be made for everything, and if given in excess, or when not required, it is wasted. As a rule the prepared manures, such as Beeson's, Clay's, Jensen's, and Standen's (which are mentioned alphabetically) are the most convenient for amateurs and undoubtedly good.

**King of the Pippins and Golden Winter Pearmain Apples (Pomo).**—The original and true King of the Pippins, which is exceedingly rare, is that described in the "Fruit Manual" under that name. The variety usually known in the markets under the names of "King Pippin" and "King of the Pippins" is the old Golden Winter Pearmain, the name of which was changed by Kirke, a nurseryman at Brompton, to suit some trade purpose about the beginning of this century. The Seek-no-Further of Herefordshire is no doubt also the Golden Winter Pearmain—Hereford notwithstanding. The season of all keeping fruits is very variable, and depends as much on soil as climate. We have now blenheim Pippin quite sound and fresh from a clay soil, and Marie Louise Pear from the same soil keeps till January and February. The time of ripening of Golden Winter Pearmain is given in the "Fruit Manual" as October to January, and this we have found is correct.

**Strawberries—Vines (Old Subscriber).**—If early runners are established, and good plants with bold crowns produced by October, these seldom fail to throw up good trusses of flowers if not unduly forced and the varieties are suitable for pot culture. In the absence of any information respecting your plants we can only suggest that they did not form and mature strong crowns in the autumn. When "strong and vigorous" Vines produce little or no fruit it is because the growths were not well fed and ripened in the summer. When the roots descend into wet subsoil apparently robust growth often follows, but it is not fruitful growth, for the roots cannot find the requisite nutriment in inert soil. With roots working freely in good



soil near the surface, the growths trained thinly in the summer, the foliage kept clean, and the wood well ripened, Vines are bound to show bunches, and, rightly managed, perfect fruit in due time.

**Melons not Swelling (A. L.).**—There can be little doubt that you indicate the cause of the failure in the sentence "It is impossible to keep up the required heat at night, owing to had arrangement of the boiler." Melons cannot be growing satisfactory in a temperature too low for their requirements. In defectively heated structures it is a mistake to raise and plant Melons so early in the season as you have done. By planting very strong plants at this season of the year in good soil over a bed of fermenting materials we have had good crops of excellent Melons in a house where no means of affording artificial heat were provided; but the house was closed early with much sun heat, and the glass was covered with a blind on cold nights. If you adopt the same plan of arresting radiation you will have a night temperature in your house from 5° to 10° higher than without any covering, and this may make all the difference between success and failure.

**Planting Vines (Ferndale).**—The Vines would probably have been better had the roots only been covered with about 4 or 6 inches of soil. If this had been done, and the border mulched in early spring to prevent evaporation, the roots could have been kept near the surface. They descend quickly enough without placing them too deeply in the border. Vines always make a certain amount of growth before the roots commence activity. When the roots commence working the foliage assumes a much darker and healthier shade of colour. The foliage, even of established Vines, is always pale at first until root-action has commenced. If the border has been in a proper state for moisture since the Vines were planted and the roots are still alive, they are certain to start working; the deeper they are laid in the border the longer generally are they before action commences. The formation of the roots near the surface is due to the extra warmth and moisture which they receive. We do not believe it prudent to bury much of the stems of Vines to induce the formation of roots from them, for they are generally formed at the expense of the lower or main roots. It is very difficult to say why your Muscats have not set well without knowing exactly the condition of the wood, the state of the roots, the temperature and moisture of the atmosphere of the house, as well as other cultural particulars to which they may have been subjected. The dull weather should not have been the cause if all other conditions were favourable. We have generally noticed that Muscats set the best when the weather is not too bright. Some excellent and successful cultivators apply light shade to the glass during very bright weather while the Vines are in bloom.

**Orchids (Idem).**—There can be no doubt that the compost in which your Orchids were potted was rendered sour through being kept too wet during the winter. Many species and varieties of Orchids require very little water during the winter or resting period, and if over-watered in that stage the roots are certain to decay. After potting them they should be watered with great care, being kept rather dry than wet until the formation of new roots and the commencement of growth, then more liberal supplies should be given. Sphagnum moss in a living state is largely used by most Orchid growers for many varieties, and they do wonderfully well in it, provided it is removed when it becomes decomposed and is replaced with fresh—that is, annually or every second or third year, according to the nature and requirements of the plants cultivated. Ants are very troublesome and difficult to eradicate. Strong petroleum and water poured into their nests will destroy them, so will boiling water in which a good quantity of salt has been dissolved. Another plan is to set traps, such as basins, small bottles, &c., with some sweet material in them, and then immerse them into boiling water daily. Hollow bones with a little fat left in them are also good traps for them, and by carrying out persistently these methods they can be got rid of. But this is a work of time and requires patience.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (W. B., Lancashire).—1, *Cereus Jamacaru*; 2, *Cereus speciosissimus*. (Wm.).—1, *Gloxinia tubiflora*; 2, *Melissa officinalis variegata*.

# COVENT GARDEN MARKET.—JUNE 2ND.

TRADE steady, and with good supplies prices lower.

## FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. ..	1/2 sieve	2 0 to 3 6	Peaches .. ..	per doz.	6 0 to 20 0
" Canadian ..	barrel	0 0 to 0 0	Pears, kitchen ..	dozen	0 0 to 0 0
Cobs, Kent ..	per 100 lbs.	27 6 to 30 0	" dessert ..	dozen	0 0 to 0 0
Figs .. ..	dozen	3 0 to 6 0	Pine Apples English ..	lb.	1 0 to 1 6
Grapes .. ..	lb.	2 6 to 5 0	Plums .. ..	1/2 sieve	0 0 to 0 0
Lemons .. ..	case	10 0 to 15 0	St. Michael Pines ..	each	4 0 to 6 0
Melon .. ..	each	1 6 to 3 6	Strawberries ..	per lb.	2 0 to 4 0
Oranges .. ..	100	4 0 to 6 0			

## VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes ..	dozen	1 0 to 0 0	Lettuce .. ..	dozen	1 0 to 1 6
Asparagus ..	bundle	2 0 to 5 0	Mushrooms ..	punnet	0 6 to 1 0
Beans, Kidney ..	lb.	1 6 to 0 0	Mustard and Cress ..	punnet	0 2 to 0 0
Beet, Red ..	dozen	1 0 to 2 0	Onions .. ..	bunch	0 3 to 0 0
Broccoli ..	bundle	0 0 to 0 0	Parsley ..	dozen bunches	2 0 to 3 0
Brussels Sprouts ..	1/2 sieve	0 0 to 0 0	Parsnips .. ..	dozen	1 0 to 2 0
Cabbage .. ..	dozen	1 6 to 0 0	Potatoes .. ..	cwt.	4 0 to 5 0
Capstums ..	100	1 6 to 2 0	" Kidney ..	cwt.	4 0 to 5 0
Carrots .. ..	bunch	0 3 to 0 4	Rhubarb .. ..	bundle	0 2 to 0 0
Cauliflowers ..	dozen	0 0 to 0 0	Salsafy .. ..	bundle	1 0 to 1 6
Celery .. ..	bundle	1 6 to 2 0	Scorzoner ..	bundle	1 6 to 0 0
Coleworts ..	doz. bunches	2 0 to 4 0	Seakale .. ..	per basket	0 0 to 0 0
Cucumbers ..	each	0 3 to 0 6	Shallots .. ..	lb.	0 3 to 0 0
Endive .. ..	dozen	1 0 to 2 0	Spinach .. ..	bushel	3 0 to 4 0
Herbs .. ..	bunch	0 2 to 0 0	Tomatoes .. ..	lb.	1 0 to 1 6
Leeks .. ..	bunch	0 3 to 0 4	Turnips .. ..	bunch	0 4 to 0 6

## PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0 to 18 0	Ficus elastica ..	each	1 6 to 7 0
Arbor vite (golden)	dozen	0 0 to 0 0	Fuchsia .. ..	per dozen	6 0 to 12 0
" (common) ..	dozen	6 0 to 12 0	Foliage Plants, var.	each	2 0 to 10 0
Arum Lilies .. ..	dozen	9 0 to 18 0	Genistas .. ..	dozen	6 0 to 12 0
Azaleas .. ..	dozen	24 0 to 42 0	Hydrangea .. ..	per dozen	9 0 to 18 0
Bedding Plants, var.	doz.	1 0 to 2 0	Ivy Geraniums ..	per dozen	5 0 to 6 0
Begonias .. ..	dozen	6 0 to 9 0	Lilies of the Valley, in		
Calceolaria .. ..	per dozen	6 0 to 12 0	pots, per doz.	12 0 to 18 0	
Cineraria .. ..	dozen	4 0 to 8 0	Lobelias .. ..	per dozen	4 0 to 6 0
Cyclamen .. ..	dozen	0 0 to 0 0	Marguerite Daisy ..	dozen	8 0 to 12 0
Cyperus .. ..	dozen	4 0 to 12 0	Mignonette .. ..	per dozen	5 0 to 8 0
Dracena terminalis,	dozen	30 0 to 60 0	Musk .. ..	per dozen	2 0 to 4 0
" viridis .. ..	dozen	12 0 to 24 0	Myrtles .. ..	dozen	6 0 to 12 0
Erica, various ..	dozen	12 0 to 24 0	Palms, in var. ..	each	2 6 to 21 0
Euonymus, in var.	dozen	6 0 to 18 0	Pelargoniums, scarlet, doz.	3 0 to 6 0	
Evergreens, in var.	dozen	6 0 to 24 0	Pelargoniums ..	per dozen	9 0 to 18 0
Ferns, in variety ..	dozen	4 0 to 18 0	Spirea .. ..	dozen	6 0 to 12 0

## CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. ..	12 bunches	2 0 to 4 0	Marguerites ..	12 bunches	3 0 to 6 0
Anemone .. ..	doz. bunches	0 0 to 0 0	Mignonette ..	12 bunches	3 0 to 6 0
Arum Lilies ..	12 blooms	4 0 to 6 0	Narcissus, various	12 bunches	2 0 to 6 0
Azalea .. ..	12 sprays	0 6 to 1 0	" white 12 blooms	0 6 to 1 0	
Bouvardias ..	per bunch	0 6 to 1 0	Pelargoniums, per 12 trusses	0 9 to 1 0	
Camellias .. ..	12 blooms	1 6 to 4 0	" scarlet, 12 trusses	0 4 to 0 8	
Carnations ..	12 blooms	1 0 to 3 0	Paeonies, various 12 blooms	0 6 to 0 9	
Chrysanthemums	12 blooms	0 0 to 0 0	Roses (indoor), per dozen	1 0 to 3 0	
Cowslips .. ..	doz. bunches	0 0 to 0 0	" Tea .. ..	dozen	0 9 to 2 0
Cyclamen .. ..	doz. bunches	0 0 to 0 0	" red .. ..	dozen	2 0 to 4 0
Daffodils .. ..	12 bunches	1 6 to 6 0	Primroses, Yellow, dozen		
Epiphyllum ..	doz. blooms	0 0 to 0 0	bunches .. ..	0 0 to 0 0	
Eucharis .. ..	per dozen	4 0 to 6 0	Primroses, Double White,		
Gardenias .. ..	12 blooms	1 0 to 3 0	dozen bunches ..	0 0 to 0 0	
Hellebore .. ..	doz. blooms	0 0 to 0 0	Spirea .. ..	12 sprays	0 6 to 1 0
Hyacinths, Roman, 12 sprays	0 0 to 0 0		Stephanotis ..	12 sprays	2 0 to 3 0
" Dutch .. per box	0 0 to 0 0		Tropaeolum ..	12 bunches	1 0 to 3 0
Lapageria, white, 12 blooms	0 0 to 0 0		Tuberose .. ..	12 blooms	1 0 to 2 0
Lapageria, red ..	12 blooms	1 0 to 2 0	Tulips .. ..	dozen blooms	0 2 to 0 6
Lilac .. ..	per bunch	2 0 to 6 0	Violets .. ..	12 bunches	0 0 to 0 0
Lilium longiflorum, 12 blms.	6 0 to 9 0		" Czar, Fr., ..	bunch	0 0 to 0 0
Lily of the Valley, 12 sprays	0 4 to 0 9		Wallflower ..	12 bunches	2 0 to 4 0



## THE FUTURE OF FARMING.

WHEAT-GROWING will probably dwindle to very narrow limits upon many farms, especially where there are inferior crops again this year, yet we may well inquire if those who fail in the culture of Wheat are likely to do better with other crops. One of our tenants could only obtain 24s. a quarter for his Wheat, and the yield of grain from that crop would probably not exceed as many bushels an acre. Another had no difficulty in selling his Wheat at 38s., and the average yield of his fine crop was close upon 48 bushels an acre, which represents a return for grain alone of £9 18s., and if we add the value of the straw £2, we have the very satisfactory total of £11 18s. per acre. Bearing in mind the very general recent reduction of rent we cannot refrain from asking if after all the farmer is such an object of pity as he is generally supposed to be? We may doubtless be told that not many farms would afford so fine an average as the high one mentioned; yet if we ask why, shall we not find blame attached to the soil and not to its cultivation? Puzzled! it might be said truthfully enough of many a farmer who now sees his corn crops of a sickly yellow hue and weak in growth. He tries to account for it by talking of drought, or wet, or cold, but at the same time his mind is beset with doubts of the condition and of his treatment of it. Not at all uncommon is it to hear a certain field termed a "bad" field, just as though it were incapable of improvement. A farmer whose span of life is fast approaching its full limit of three-score years and ten said to us recently with an air of doubt and a tone of inquiry, "I have said I would use no more artificial manure, but I don't know?" Low prices for farm produce had evidently set him thinking, and raised doubts in his mind as to the soundness of his practice.

In the future of farming we shall, simply because we must, possess sufficient knowledge of the nature of the soil



and its requirements to impart as much certainty as possible to the work of its cultivation. Our work can never aim at the precision of mere mechanical effort because results must always be influenced by changes of weather, but it is possible by high cultivation to impart a much greater degree of certainty to it than has hitherto been achieved generally. Take for example two meadows, one drained carefully, and with equal care bestowed upon the regular and timely application of manure to it; the other undrained, and either unfertile or manured very late. In the first we have early growth and a hay crop of singularly uniform abundance; in the last, late growth and a hay crop so seriously affected by weather that a few weeks of dry weather in April and May proves fatal to it. The condition of the Wheat crop at the present time may be taken as another example. Field after field may be seen with plants of sickly hue and stunted growth, and such Wheat fields are largely in the majority; but there are others, or rather there are farms where the whole of the Wheat is in excellent condition, the plant is already nearly a foot in height, and its dark green hue is entirely satisfactory. Not simply is this high colour and free growth to be traced to the use of chemical manures alone. We know farms where sheep were folded upon Clover which was followed by Wheat that now is positively rampant in growth, affording additional proof of the importance of sheep-folding in farming. Upon one of our farms there is a twenty acre field of Wheat, part of which had dressings of home-mixed chemical manures, but the other part had no manure, the bailiff being strong in his assertion that it required none. He now probably regrets being so positive, for the plant on the unmanured part though fairly robust is poor in colour and weak in growth in comparison with the rich dark green and almost rampant growth of the other part. We do not much regret this, for the lesson is a valuable one, and we shall be able to ascertain exactly how great is the advantage of using the manures we have so often recommended.

Having regard to the important part which chemical manures must play in the future of farming, we may mention that in the opinion of some practical men we have been somewhat rash in so strongly recommending the same sorts and quantities of manures for the use of farmers generally. Well, it may be that we have been a little positive about a matter of such immense importance, but then have we not reason? The results achieved in Sussex and Aberdeenshire have been so remarkable that we dare risk something in our ardent desire to see similar results in other parts of the country. So confident are we of the general value of the manures, that we have used several hundreds of pounds worth this season for the crops upon our Suffolk farms, and, judging from the appearance of the crops now, we have reason to believe our expenditure was a wise one. How few farmers will try and ascertain for themselves what is best for the soil of their farm! Knowing this, and knowing too that potassium, phosphorus, and nitrogen are the chief elements of fertility with which it is necessary that all soils should be stored, we have ventured to recommend them generally, confident that though there might be some waste by the use of more of one or other sort of manure than was necessary for certain soils, yet the general result must be so good as to prove highly beneficial. Earnestly do we wish it known that we write open to correction, for certainly we can claim that the end and aim of our teaching is the improvement of farming, the good of farmers, and if any of our readers can help in so good a cause, most cordially do we invite their co-operation.

(To be continued.)

#### WORK ON THE HOME FARM.

The first sowings of White Mustard have come up well, and if the weather continues showery some nitrate of soda will be sown broadcast over this catch crop, our object being to induce strong growth for ploughing in as soon as the seed pods are fully developed. The land now under this treatment was both poor and foul last year; we have got it clean, and hope now to so store it with fertility that it will yield really full crops

next year. Swede-sowing both on the ridge and flat has been done under favourable conditions; the Mangolds are growing freely, so that on the whole we have reason to hope for a good root crop and an ample store of food for next year. The frequent showers that have fallen since our last note was written have done much good to the hay crop; all the grass is growing freely, and we may now safely conclude that the crop will be abundant. Nettles, Thistles, and Docks have also shot up on grazing pasture, but we have not yet been able to cut them down, as all available labour has been given to keeping under weeds among spring corn. Showery weather renders this an arduous undertaking; our difficulties have been increased by careless work of the labourers, who, having taken the work to do by the acre, appear to care for little besides getting over the ground as fast as possible. It is of course the bailiff's duty to see that such piecework is well done, but we find it necessary to give frequent attention to it in order that our wishes may really be carried out. Charlock, Thistles, and Couch Grass are our most troublesome weeds, which it is no easy matter to keep within reasonable bounds, for when once these pests become established in the soil they cling to it with a persistence that is most disheartening. There is, however, nothing for it but equal persistence on our part in our efforts to eradicate them, for we cannot hope for really full crops while the land is foul with weeds. Sheep-washing and shearing must now have attention, and especial care be taken to put quiet careful men at the work. About a fortnight is required after the washing before the wool is in condition for shearing, the sheep being kept upon grass or green crops where the wool cannot become dirty again. Some few scars are always found upon sheep that are restive under the shearing, and time must be allowed for them to heal before the dipping in Cooper's mixture is done. We like this summer dipping to be done as early as possible in July, as it then serves to keep off attacks of flies, which so frequently prove troublesome to the sheep. We consider negligence in such matters highly reprehensible, leading, as it does, to much suffering among the sheep.

#### OUR LETTER BOX.

**Grass Manure (W. T. H.).**—Professor Jamieson's formula for Grass has been published more than once in this Journal, and is repeated as follows:— $\frac{1}{2}$  cwt. nitrate of potash,  $\frac{3}{4}$  nitrate of soda,  $\frac{1}{2}$  cwt. superphosphate of lime,  $\frac{1}{2}$  cwt. steamed bone flour. This is for an acre, and should be applied in February. Some excellent and successful agriculturists consider muriate of potash answers as well as the nitrate and it is much cheaper, and we know of an instance where sulphate of potash (kainit), which is cheaper still, has proved very satisfactory. Particular manures have not precisely the same effect in all soils, and on cold wet land  $\frac{1}{2}$  cwt. of sulphate of ammonia has been found more effectual than  $\frac{3}{4}$  cwt. of nitrate of soda. With the judicious use of concentrated manures of the nature indicated, and the prevention of weeds, the yield of both Grass, grain, and root crops might be easily doubled in many districts in this country; and we are convinced that farming in the future cannot be profitably conducted without a liberal yet intelligent use of what are commonly described as artificial manures, but which are nevertheless very real in their effects. We are glad you consider our farm articles generally instructive, and are obliged by your suggestion.

**Condensed Milk (Inquirer).**—The following extract from Professor Sheldon's great work on Dairy Farming may help you:—"There are various methods and recipes for condensing and preserving milk, among which the following may be mentioned. 1, Add sugar, evaporate to one-fourth, solder in cans. 2, Add carbonate of soda and white sugar, evaporate to dryness, cut into cakes. 3, Add sugar and alkali, evaporate to dryness, crush, powder, and bottle. 4, Evaporate to one-half, beat up white of egg, simmer, skim, strain, and boil. 5, Carbonate of soda one-half drachm, water one fluid ounce, dissolve, add milk one quart, sugar one pound, reduce to syrup in a steam bath, and finish the evaporation on plates in an oven."

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain
		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature			
			Dry.	Wet.			Max.	Min.	In sun.	On grass		
1886.		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
May.												
Sunday .....	23	30.095	53.3	52.0	N.E.	53.2	64.2	48.7	84.3	49.0		
Monday .....	24	29.913	55.4	54.1	N.	53.0	56.2	50.6	60.4	42.9	1.272	
Tuesday .....	25	29.699	56.2	52.1	S.W.	52.4	62.3	46.7	104.4	42.3	0.075	
Wednesday ..	26	29.627	54.8	54.1	W.	52.5	61.2	49.4	107.3	46.2	0.387	
Thursday ....	27	29.387	50.8	49.7	S.W.	52.4	60.7	49.8	107.6	45.2	0.788	
Friday .....	28	29.700	53.9	46.4	S.W.	52.2	59.8	45.5	112.3	40.3	0.019	
Saturday .....	29	29.365	54.0	47.8	S.	51.6	63.3	44.2	104.6	38.9	0.010	
		29.755	54.1	50.9		52.5	61.1	47.8	97.3	43.5	1.751	

#### REMARKS.

23rd.—Distant thunderstorm early, with heavy rain; dull and damp, except from 5 to 7 P.M.  
 24th.—Fair till 10 A.M.; then almost continuous rain day and night.  
 25th.—Fine, with some sunshine.  
 26th.—Fine, with a good deal of sunshine.  
 27th.—Heavy rain early; dull first part of morning; fine and bright after; gale in afternoon and night.  
 28th.—Fine and bright, but with a short sharp shower about noon.  
 29th.—Fine early; occasional showers in morning; lovely afternoon and evening.  
 A week with a good deal of bright and pleasant weather, though there was only one rainless day, and the total rainfall is large. Temperature about one degree below that of the preceding week, and nearly three degrees below the average.—G. J. SIMONS.





## COMING EVENTS

10	TH	Royal Society at 4.30 P.M.
11	F	Manchester Horticultural Exhibition (seven days).
12	S	
13	SUN	WHIT SUNDAY.
14	M	BANK HOLIDAY.
15	TU	
16	W	Royal Meteorological Society at 7 P.M.

## WEEDS AND WASTE.

**W**EEDS are exhausters of the soil robbers. They rob the land of its virtues, steal the food of useful crops, destroy the credit of cultivators, and empty the pockets of the owners of land. Weeds have done more injury to British husbandmen than all the importations of foreign grain has, for if there had been none of these robbers the increase of home grown food would have been enormous, with no more cost for seed, manure, or rent, and only a little more for labour if timely applied. The condition is important to gardeners and farmers alike, for "timely action" is undoubtedly the great lever of economy in cleansing the land and conserving its virtues for profitable or desirable crops.

That familiar implement, the hoe, is a great factor in successful culture, and its prompt and frequent use is a certain incentive to the growth of plants. It is the great annihilator of weeds which, if allowed to develop, gorge on the virtues of the land and leave it the poorer. It were as hopeless to expect weed-infested ground to maintain its supporting power as to rely on a full crop of hay from fields constantly grazed with cattle or sheep. The only difference is that the animals deprive the land of its resources above, the weeds extracting them from below the surface. The effects are the same, only the former evil is more apparent, though the latter is not less real.

Of what avails draining, digging, trenching, ploughing, and manuring if whatever may be intended to cultivate does not derive the benefit of these operations? They are quite costly enough when the accruing advantages are immediately directed to the object desired; but when weeds are allowed to have a great share of the proceeds, just to that extent is the money expended in preparing and enriching the soil wasted. Weeds and waste go together in the management of land under cultivation, and no excuse that can be urged in extenuation, and no argument that may be advanced, can alter that fact. Everything that grows needs food, and the very existence of growth is visible evidence of the appropriation of the virtues of the soil—of food being extracted from it. When this is represented in useful crops or plants that it is sought to perfect, in those the cultivator has his reward; if represented in weeds, in those he incurs the penalty of neglect, waste and loss. There is no mistake about this. The loss in some individual cases may be small and comparatively inappreciable, but in others it may be both seen and felt, while in the aggregate it is enormous.

Judging by the complacent way in which weeds are tolerated among garden and farm crops it might be supposed that they live on a different kind of food, one crop not depriving the other of the means of support. It should be known that they live on exactly the same kind of food, though the relative proportions of the ingredients may vary, as in the case of cultivated plants. Weeds and the crops they accompany abstract the same food from the common store. They are competitors, each leaving something less

for the other; and weeds, if permitted to develop, will certainly have their share.

As an illustration of the competing power of weeds and cultivated plants we may adduce two familiar examples—namely, one of the commonest of all crops, Wheat, and one of the most ubiquitous of weeds, Groundsel. What do we find? This: Leaving out what may be termed minor ingredients in both cases, we find the prominent constituents of both as ascertained by analyses are phosphoric acid, lime, potash, and magnesia. Of these, taking the mean analyses of grain and straw, Wheat contains of phosphoric acid 18.3, lime 4.65, potash 18.3, magnesia 7.92. Now to Groundsel. This contains of phosphoric acid 7.65, lime 16.11, potash 29.85, magnesia 6.29. It will be seen that both partake of the same ingredients though in differing proportions, yet both are equally exhausting. Groundsel is a potash plant; so is the Potato, and when both are grown together, as is often the case, the useful crop is deprived of a large amount of the chief agent in its development. Potash is thus essential for Potatoes and Groundsel, and when it is applied to land for those crops both are benefited. These instances show that the food of useless weeds and useful crops are similar, therefore weeds very decidedly represent waste. It is a marvel that they are permitted to flourish as they do among cultivated crops in gardens and fields.

Some time ago I wrote to a farmer who grows the best crops of Potatoes, followed by the best crops of Wheat, of any that come under my observation (which is not very limited), on a matter not foreign to the subject of these notes. He grows side by side—that is, in breadths in the same field—early Potatoes, such as Beauty of Hebron, which produces short tops that die down in July; Regents, that grow say six weeks longer and about three times stronger; Magnum Bonums, that grow very much stronger still, and do not ripen till very late in the autumn. Probably the majority of persons would imagine that the strong and late-growing varieties would exhaust the land much more than the dwarf earlies, and consequently there would be a marked difference in the Wheat crop in the respective plots. This was the view of a few gardeners to whom I spoke on the subject, but as I inclined to a different view information was sought to settle the point. The following is the answer obligingly sent, the writer of it not knowing the object of the inquiry:—

"In reply to your query about the effect of different kinds of Potatoes on the following corn crop, I think there is very little difference. I have often looked for one but could never find anything striking, and I think if I lean to an opinion either way it is in favour of the stronger-growing kinds, and I fancy the reason is that their tops have smothered the weeds and rubbish more effectually. There is an impression abroad that if a crop is a failure (such as a thin crop of Wheat owing to loss of plant from wireworm) there is more nutriment left in the land for the next crop. This is a great fallacy. I believe a full heavy crop of anything will exhaust the soil no more than a bad crop of the same description."

That is a very significant letter. When a crop is thin it is not considered to be worth cleaning. The weeds have then a merry time growing, flowering, seeding, and exhausting the land. This they do just as much as a "full and heavy" food crop would. The weeds eat out the virtues of the soil and give nothing in return. Millions of pounds worth of labour and manure have been wasted on weeds in this country during the last fifteen years.

What is the remedy? The hoe or other scarifying implement timely applied—that is, not after the weeds grow, but before. Ten thousand can be prevented with a ten times less expenditure for time and labour than as many hundreds can be destroyed after they have been allowed to get firmly established, while in the former case the fertility of the soil has been conserved, and in the latter dissipated.

A man can run a hoe through an acre of ground with less



exertion to himself, and with far greater advantage to the land, when there is only the faintest tinge of green by upspringing weeds, than he can cleanse one-tenth that extent after they have approached or attained to a flowering size. Assuming the man has 3s. a day, the saving effected by prompt action is obvious and important. But some wage-payers, for garden labour especially, conceive that their money is being wasted when they see a man hoeing where there are not strong weeds. Such persons are not practical. They have not, in fact, "thought the matter out," hence really do not know what is good for themselves. Sound gardeners, however, know it, and some of them, perhaps many, do much good by stealth in rushing the hoes through the ground in the absence of the lord and master; and others would only be too glad to ply the hoe sooner than they do if they were not overwhelmed by other pressing work in spring. Driven by circumstances, not a few owners of gardens feel compelled to reduce as much as possible the labour supply. It is very easy to reduce too much and lose in the end far more than is gained in the beginning. Saving labour results in weed-infested land, and this means a greater waste of money than it is possible to compute. It is the farmers of such filthy land who first fail. They allow it to be overrun by an army of robbers, and trust to the impossibility of their not pillaging. Those market gardeners who enrich their land the most freely and prevent the growth of weeds the most sedulously, pay the highest rents and make the most money. They cannot afford to let weeds grow. They would be ruined if they did; and no labour is so productive to them as that by which weeds are prevented and the whole resources of the soil directed to the more remunerative crops.

Hoeing before weeds are visible is the most economical and effectual of all methods of procedure; for, besides preventing robbers feasting on the food in the soil, it admits air and warmth in spring, greatly accelerating growth; and in summer conserves the moisture that is continually escaping in hot dry weather through the fissures that form in soil when the surface is not periodically broken. By the practice indicated weeds are completely extirpated, and waste of the earth's resources reduced to a minimum. — EXPERIENTIA DOCT.

### ASPARAGUS.

I READ with interest the articles in the Journal recently upon the cultivation of Asparagus. There is one mode of assisting growth not referred to, and yet which, in my opinion, is such an excellent one that I think it deserves mention.

In the autumn after the growth is thoroughly ripened and cut down, give a heavy dressing of Sea Wraick quite fresh from the shore, cover it over with a thin layer of soil dug from the alleys to prevent all evaporation, and leave it to rot. In spring the birds will attack the beds in swarms, devouring a sort of maggot which then develops in the decayed Sea Wraick. When they do this it shows that the beds are ready for dressing. Remove the surface soil that was laid over the Wraick, gently point the beds over not more than 2 or 3 inches deep, then rake off the thick coarse undecayed stems of the Wraick. All the rest will be found to be almost entirely melted and ready to be washed into the soil when the next showers of rain come; and as soon as they do come there will be no mistaking the effect produced, as the melting mass of saline matter is gradually washed down to the roots of the Asparagus just as it is pushing its way to the surface. Talk of French Asparagus—none of it is to be compared to what I used to grow by this method. Another advantage is that you are not troubled with weeds.

One more observation even at the risk of being thought tedious. I have often heard it said that old Asparagus roots would not make good new beds. My experience is quite the contrary of this. I made some beds with two-year-old plants in 1865, I had to change my residence eighteen years afterwards (in 1883). The Asparagus was so fine that I could not make up my mind to leave it behind, so I had a lot of dug up (great big old stools) and, without any other packing, put in a railway truck and replanted in new quarters. The first year after removal I did not allow it to be cut, but since then it has been perfectly vigorous, and cut regularly with most satisfactory results.

I have generally heard people say that there is only one strain of Asparagus, and that any difference in quality is only the result of

cultivation; but that I refer to came from Cornwall, and from the first day I saw it to the present time I am convinced it is different from any other Asparagus I have ever seen.—A. D., *Isle of Man*.

IN reply to "Thinker's" inquiry (page 442), five years ago I made a trial on our Asparagus beds. We have six long beds. On two of these all shoots were kept cut until the middle of June. On the next two the thin spray was left from the commencing of cutting. On the other two spray was kept cut close from the commencement also; but strong shoots were left here and there singled until one was left at each crown. The following year the beds were anxiously watched, but I could not perceive any difference whatever on any of the beds; neither have I done so since. I have wished since that I had carried the experiment on the following year; but since then I have cut all away until the middle of June. Our Peas generally govern the Asparagus. As soon as they are in we leave off cutting the Asparagus altogether. I have given the beds a good dressing of manure every March. We first throw the soil into the alleys (or I should say part of it, as we do not bare the crowns); we then put on the manure and cover from the alleys. In April it has a dressing of salt. I should like to give another dressing when I leave off cutting, but I am not allowed to do so.—J. L. B.

### FRUIT STONING.

FEW things are so tantalising in horticultural practice as to have an abundant show of fruit blossom, and then have to experience a blighting of anticipations by the embryo fruit falling with or soon after the faded petals. Then the tiding safely over a good set raises anxieties as to the fruit swelling. Much does not swell—it "stands still," and is not long ere it falls. After this our care is about the stoning. The fruit may be cast in this, and our hopes of a crop for that year at least are lost.

There are two very important periods in the growth of fruit from the time the blossoms expand until perfection. There is the blossoming, during which the fruit is set or not set, depending upon the development of the organs of fructification, and the other is in the development and maturation of the fruit. The blossoming is a natural sequence of the formation of fruit buds in the previous season of growth. The buds are perfect or imperfect in the year of their formation. They do not change in the bud state. What they are formed when the leaves are on the trees, and what they attain in respect of perfection or imperfection, is effected whilst the foliage is upon the trees, and by or before it becomes mature and falls. Perfectly developed buds are, I am aware, formed at a very early stage. In some instances, as in the case of Vines, it is evidenced in bunches formed on laterals, and we sometimes have Peaches blossoming and setting in late summer when the leaves are upon the trees, and we have very frequent examples in Pears and Apples bearing secondary crops of fruit, but I have never known an instance of trees with no blossom buds when the foliage fell forming them during the winter months or season of rest. Peach trees that are forced early sometimes lose part of their leaves from red spider, and these plump the buds on the leafless parts quite as well as those that are furnished with leaves, and set and stone quite as surely as fruit on wood the buds of which had foliage up to a late period. Royal George and all the small-flowered Peaches and Nectarines bear more hardship in the loss of foliage than the large-flowered varieties, of which Noblesse, Grosse Mignonne, Early York, &c., are types. The first ripen or perfect the blossom buds, but the large-flowered seldom or never, forming imperfect pistils—that is, having short styles, and the anthers are devoid of pollen, if indeed the buds are not cast when we anticipate their swelling. I mention this because I have a recollection that "Thinker" asked my opinion upon this point—viz., "Did not the wood ripen after the leaves were off and in subsequent seasons?" I have no doubt of the wood hardening, but of its ripening I have very grave doubts, for ripening—that is, solidification during growth or with foliage, and hardening without foliage, are very different. In one we have a perfectly elaborated and assimilated formation of wood, and such a deposition of what physiologists term cambium, that a perfect bud is insured, certain to develop under favourable conditions in a perfect blossom, and to set and stone perfectly; but in the sappy growth we get crude sap and sound matter intermingled, the growth is not solidified as grown, the buds are not perfectly formed, the wood only ripens sufficiently to withstand ordinary temperatures of cold, and though we get a sheet of bloom there is no solidity of the organs of fructification even if we grant them to be perfect, and the blossom does not set or the fruit does not swell or stone. This in consequence of there being little or no ripened wood. "What!" I hear "Thinker" say, "No ripe wood! Why, you contradict yourself! There are Grapes borne perfect in every way on laterals, second crops



of Pears" Granted, but what a difference! It is the short-jointed thoroughly solidified growth that gives the Grapes on the laterals, stubby hardened wood that gives the second crop or fruit on the current year's growth of Pears. Soft, gross, long-jointed wood is no use for a crop in the current; it rarely is of any value for a crop of fruit in the year following formation, and it seldom if ever becomes so ripened as to lay the foundation of a healthy and long-lived fruitful tree.

The cause of fruit not stoning is due to similar conditions being wanted as regards the setting, and this entirely results from the conditions under which the growth is made, the buds formed, and the wood perfected in the previous season. What is wanted is thoroughly solidified growth, and foliage kept healthy until it falls naturally. This effected, we can hardly fail of perfect blossom, a good set, and a satisfactory stoning. If, on the other hand, we seek gross long-jointed wood the result is sterility. If we get blossom it is sparse; it may even set, but the chances are it will not pass the stoning process. This is very annoying, and though immature wood is a chief cause of fruit not stoning it is not by any means everything. We see trees year after year masses of bloom, and yet the appetite of the owner is not further gladdened. "Your ripened wood theory is of no use in bringing a crop of fruit," some may say; "my Cherry, Pear, and other fruit trees blossom well, they never give any fruit worth naming." I fully know your case, and sympathise with you. It hardly, however, comes within my present intentions, and yet without a set there can be no stoning, and we cannot well take account of one without the other.

Fruitfulness is a natural effect of a constitutionally healthy plant properly nourished. The weakly trees as a rule make the greatest effort at reproduction; the gross, but it by no means follows healthy, trees give the finest specimens of their kind, with an inherent tendency in the progeny to transmit the sparseness of reproduction, whilst the very gross are sterile. We clearly do not want the weak nor yet the gross, but we do require a plant to be so weak as to be fruitful, and so gross as to secure to us as large an amount of useful produce as possible. Growths that formerly would have been considered too gross and sappy and would have been cut away as useless are now fruited; shoots of Peaches as thick as the finger and twice the length of walking sticks are made to give fruit of a quality excelling any produced from wood that was only left a few inches long. In the one we have no more wood than is wanted, and in the other wood encouraged only for the purpose of cutting it away. The first is grown thinly so that light and air have free access, the other is grown thick and cut back to ripe wood at the base. Neither is of any good unless the wood is ripe. This is the first great principle in fruit cultivation. Without ripe wood there is nothing. We may get strong wood, large blossoms on Peach trees, large loose bunches of Grapes, even set them, but we may be certain that the Peaches will not stone and the Grapes will exhibit a large per centage of stoneless berries. On the other hand over-ripe wood has no such tendency. By over-ripe wood is meant the tendency to produce blossoms, as is common with early-forced Peaches, Cherries, &c., when the trees should be going to rest, which is fatal to the succeeding crop. The wood is never too ripe for a perfect blossom, and never too ripe for stoning. We must, however, have perfect blossoms perfectly fertilised or the fruit will not set; therefore what is essential to a good set is essential to stoning. In this respect they are inseparable, but they are divisible in that the wood may be only so ripe as to secure a good set, and yet so unripe as not to secure stoning. The most common instances of this are in the case of the Peach and Cherry, and in that of the seeding of Figs. Grossness, long-jointedness, and immaturity never fail of sterility; firm short-jointed wood properly nourished and matured cannot be had without attending increase.

Fruit does not stone, therefore, because the wood is not ripe, but the result may be equally disastrous through a weakening of the vital forces by overcropping, and accelerated by poverty. Just as in over-blossoming much can be effected by timely thinning the blossoms in strengthening those that remain so as to secure a good set, so in thinning the fruit and in affording nutriment much can be obtained in respect of the fruit stoning satisfactorily. The chief cause of fruit not stoning is not so much shown in the year of prevalence as in the preceding. It is due mainly to over luxuriance, a strong long-jointed late growth, the wood not solidified as made, and never thoroughly ripened. To check this root-pruning is the only effectual remedy. Training the shoots thinly so as to let in light and air, and summer pruning in that it exercises some check on root-action, is useful. Too rich soil is also bad, and worse is a deep border with the roots far from the surface. The only safety for fruit stoning is a short-jointed growth well exposed to light and air. To effect

this the soil must be firm, and the roots must be near the surface in a well drained border. No remedy need be tried but this—viz., lifting and replanting. Sometimes, however, the luxuriance is not great yet to make so much difference in the growth and its ripening as to affect the crop prejudicially at stoning. I have had Peach trees that have made over 6 feet of growth in a season, and ripened up to the ends, fruiting satisfactorily in a house, ripening the fruit at the close of May or June, whilst others in a house not ripening before August or September, lost a large per centage of the fruit in stoning. By training the growths thinner, and taking a trench out one-third the distance from the stem that the trees cover of the trellis, and as deep as the roots when the growth had ceased, or in late September, the supply of nutriment were so arrested that the growth ripened perfectly, and the fruit afterwards stoned satisfactorily. There was very little difference in the trees, and yet there was a great diversity in the result. Evidently the early trees had a longer season and more heat to mature in, the others had to mature their growth in the less favoured conditions of late summer, and consequently required greater space or more light and air, and a lessened supply of nutriment.

It is very similar with Vines. If we have large bunches we must have strong wood, and this must have more light and air, or a greater space for the full exposure of the foliage to all the influences of light, and not only this, but the roots must be kept near the surface in soil that will cause them to ramify and afford food in a steady progressive manner. Deep rich borders would only give long-jointed wood and loose bunches of stoneless berries, except of the coarser and freer setting varieties, which though they set well rarely finish satisfactorily. Some Grapes are notoriously bad setters, and these it is generally considered require a higher temperature at the flowering stage than the free setters. Muscat of Alexandria, Black Morocco, and some others are given 5° to 10° more than other late varieties. Is it because they are more heat-requiring, or is it a consequence of the wood not being perfectly ripe? We know that sometimes these and some other Grapes do not set well even with artificial impregnation and a high temperature, and there are many more stoneless berries one season than another, and this we attribute to many things—a deficiency of water, loss of foliage from red spider, or scorching; in fact, we have causes without end; but the chief cause is no doubt immature wood, imperfectly developed buds or bunches in embryo. In the case of Figs we have excellent results from trees in pots and from those in borders of limited area with the growth near the glass in full glare of day, but we have gross wood immature and unfruitful when the borders are wide and rich, and the fruit is cast like Medlars after frost. We have, in fact, no Figs simply because the growth is not solidified as made, and the wood does not ripen, but remains soft and pithy.—G. ABBEY.

(To be continued.)

#### EUPATORIUMS.

I QUITE agree with your correspondent "G. P." at page 378 about the usefulness of the Eupatoriums there mentioned, and can testify that his management for plants in 48's or 32-sized pots is quite correct. *E. riparium* I find does best from cuttings, and to procure large specimens of *E. odoratum* I place out the plants after being cut back in rich soil in a moist corner 3 feet apart each way. These are kept well watered through the summer months, occasionally with liquid manure. The plants are stopped to keep them in shape until the middle of August. About the middle of September the roots are cut round with a sharp spade, leaving a ball about the size of the pot intended for their reception. The plants are taken up a fortnight later and potted firmly, left outside as long as weather permits, and drenched with water. The plants are then placed in a cool house, giving them plenty of room. Treated in this way they become 3 feet in height and as much in diameter. The only staking or tying required is simply looping up the loose branches. I do not agree with "G. P." as to the flat training. I consider naturally grown plants far more useful, especially for cutting. I have had plants of *E. odoratum* so treated with 150 heads of flowers open by the middle of November, and continued flowering till after Christmas. When the flowering season is over the plants are cut back and placed in a cold pit till the following May, then if too large divided with a sharp knife.—J. P.

#### CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 439.)

##### PLACING PLANTS OUT OF DOORS.

CULTIVATORS of Chrysanthemums must be guided in placing the plants out of doors by the locality in which they are situated; as for instance, those who reside on a hill are not subject to late spring frosts to the same extent as others in low districts. In the south of England the plants may safely be removed outside the



first week in May in a hilly district. A week later will be soon enough for the valley situations; and in the northern counties towards the end of the same month will be as soon as can be considered safe. It often happens that frame room at this period of the year is not very plentiful, therefore the Chrysanthemums are hurried outside rather earlier than is advantageous to them. It is wise to place them in such a position that protection from frost can easily be afforded by using light tiffany or other suitable material. A position at the foot of a south wall considerably reduces the necessity for protection. Large numbers of plants have been crippled through neglect at this stage of their growth by the want of light protection. When the points of the shoots are frozen a serious check is given to the plants, from which it takes them a long time to recover. Strong east and south-westerly winds often seriously injure them, large numbers of leaves being broken by such gales as frequently occur at that time of the year, as the leaves at that stage are so succulent they snap off readily, therefore every means should be taken to reduce the chances of this to a minimum. Stand the plants on ashes or boards to prevent the ingress of worms, allowing sufficient space between the plants that they do not become drawn up weakly.

#### BEST POSITION FOR PLANTS.

Before placing the plants in the pots in which they are to bloom the position they are to occupy during the summer should be selected and provision made for their reception, so that when potted they can at once be removed to their summer quarters. In this selection cultivators must be guided by the convenience at their disposal. A situation open to the full rays of the sun and protected from east and south-westerly wind should, if possible, be secured. Placing single row of plants on the side of a path running east and west in the kitchen garden, or one row on each side of a broad path running north and south, answers admirably, as where such positions can be afforded the plants can be easily attended to in watering and regulating their growth during the summer. If such a position as the one described is to be used it is better to stand the pots just within the border or quarter clear of the path, as the continual watering with liquid manure is apt to disfigure the gravel. Some growers plunge the pots, but except in the case of plants grown as specimens or bush plants for decorative purposes, where good foliage is especially desirable, I do not approve of the system, for the reason that in continuous wet weather, which often occurs towards the end of September, it is difficult to know when they require water. Excess of moisture at the roots is quite as bad as too little. Some people think Chrysanthemums cannot have too much water, but that is a mistake. I have seen plants denuded of a large portion of their lower leaves through supplying too much water to the roots. This is much more likely to occur in heavy retentive soils than in that of a sandy porous nature. If the pots on the sunny side could have a protection from the rays of the sun in continuous spells of dry weather by boards placed in front of the pots, I think this would be a considerable advantage both to the plants in keeping the roots cool and a saving of labour in the application of water as often as is required when the sun shines so powerfully. It is better to stand the pots on boards, slates, or tiles when in their summer quarters than upon a bed of ashes, as the roots penetrate through the bottom of the pot into the ashes for some distance in quest of moisture. When the plants are removed inside these roots are destroyed, which causes a considerable check to the plants. Worms, too, are not liable to penetrate into the pots, as they are when the pots are standing upon ashes.

Provision must be made for securing the plants from winds. This is best done by erecting a trelliswork to which the plants can be fastened. There are various means of effecting this. In some districts cultivators have at command an unlimited number of stakes of various lengths and thickness. A framework composed of these can be put up which is strong, cheap, and as easily taken down and stored during the winter. The stakes will last two or three years. The upright stakes should be of sufficient stoutness to prevent the plants swaying about, and placed at such a distance as their strength and the length of the cross rails necessitate. For the tallest plants three cross rails are necessary, while for the moderately tall-growing varieties two are enough, and one for the shortest plants. Some growers stretch stout twine from post to post instead of the rails, but this soon becomes slack by exposure to the weather, and is not sufficiently firm to prevent the plants rocking to and fro. The strongest and neatest method is that of making a permanent structure of iron standards. The end standards should be  $1\frac{3}{8}$  inch square, and be kept in position with iron supports 1 inch square. The intermediate posts may be flat iron  $1\frac{1}{4}$  inch wide and three-eighths thick. To these connect stout galvanised wire as the annexed engraving represents, to which a coat of paint has been given to

prevent damage to the tender shoots which sometimes occurs through contact with the acids used in galvanising the wire. Such contrivances are sometimes objectionable as a permanency; if so, they can easily be taken down and stored away if the wires are fastened by bolts and nuts. When the plants are potted finally a stake of the height which the plants will grow should be placed to each; some growers use one-quarter-inch iron rods made securely in the soil by means of three feet triangular in form. These have a neat appearance, but I think they are cold and not so good as those made of wood.

When the plants are placed in position these stakes are tied to the cross rails, which make all secure. The branches produced at the first break are spread out, and two of them are tied to other small stakes which are fastened perpendicularly to the cross rails as shown on fig. 86 to the required height, and when the plants are housed the two side branches are tied loosely to the centre stake. By spreading the branches out in the manner indicated better development of wood and foliage is secured by additional light and



Fig. 86.—Arranging Plants.

air; by placing the pots 1 foot 6 inches apart ample space is allowed between them. If the plants are arranged all together the rows should run east and west, and be at such a distance apart that the shade caused by one row of plants does not fall upon the row behind; to effect this a distance of 5 feet between the rows should be allowed. If the space at command is of the size to require several rows running parallel to each other the tallest plants must be arranged at the back with the dwarfier in front. Arranged thus all varieties can be accommodated to the best advantage. A knowledge of the relative height of each variety is necessary to effect this object, and for the guidance of the inexperienced I append a list of names with the height in feet. For the reader's observance of the growth and the better manipulation of each variety which has something peculiar to itself, it is a good plan to arrange all plants of each sort together; note of each can be more easily made than when the plants are scattered. To a close observer this is not the least interesting phase in the growth of Chrysanthemums. The height differs somewhat according to the treatment they receive. The excessively tall growth made by some varieties goes a long way towards condemning the method practised for the production of large blooms by some growers. If equally good flowers could be produced under any other system of culture it would indeed be a boon in many ways, but my experience prompts me to say that it is not possible, Nature must have a share of its own way. The heights which I give are based upon my own experience and produced by the methods of culture I am describing.

#### LIST OF VARIETIES WITH THEIR HEIGHTS.

THREE FEET HIGH.—L'Adorable, Val d'Andorre, Fleur Parfaite, Dolores, Mr. Cullingford, Miss Margaret.

FOUR FEET HIGH.—Golden Eagle, Golden John Salter, Hero of Stoke



Newington, Lady Hardinge, Lady Slade, Le Grand, Princess Teck, Princess Beatrice, Barbara, Fleur de Marie, George Sand, Yellow Perfection, Emperor of China, Chevalier Domage, Triomphe du Nord, Albert, Simon Delaux, Sœur Dorothee Souille, Golden Dragon, M. Henri Jacotot, Criterion, Meg Merrilies, Grandiflorum, Bronze Dragon, M. Desbreaux, M. Moussillac, Madame de Sevin, Duchess of Edinburgh, Madame Deveille, Cullingfordi, Madame Goderaux, Princess Louise, Prince of Anemones, Angelina, Lady Talfourd, Miss Hope, Beauté des Jardins, Garnet, Père Delaux.

**FIVE FEET HIGH.**—Hiver Fleuri, Flamme de Punch, Dr. Macary, M. Astorg, Margot, Fabian de Mediana, Marguerite Villageoise, Souvenir de L'Ardene, Mdle. Lacroix, Cloth of Gold, Christine, Christine Pink, Dr. Sharpe, Distinction, Flicity, Golden Christine, Mrs. Forsyth, Mrs. Pethers, Gluck, Empress, King of Anemones, Baron Beust, White Globe, Empress Eugenie, General Bainbrigge, Guernsey Nugget, Jeanne d'Arc, Mrs. J. Crossfield, Mr. Brunlces, Mrs. Dixon, Mrs. W. Shipman, Nil Desperandum, Piuk Perfection, Refulgence, Mdle. Cabrol, Fernand Feral, Boule d'Or, Mrs. Sharpe, Mrs. Haliburton, Prince of Wales, St. Patrick, Progne, Madame Boucharlat, Rosa Bonheur, Agrements de la Nature, Ethel, L'Incomparable, Magnun Bonum, L'Africaine, La Nympe.

**SIX FEET HIGH.**—Golden Empress, Queen of England, Empress of India, Alfred Salter, Lord Alcester, Jardin des Plantes, John Salter, Lord Derby, Mabel Ward, Mr. George Glenny, Mrs. G. Rund'e, Novelty, Cherub, Eve, Emily Dale, Mdle. Madeleine Tezier, Madame Clos, Triomphe de la Rue des Châlets, Striatum Perfectum, C-rez, Duchess of Albany, Dormillon, Elaine, Fanny Boucharlat, Jeanne Delaux, James Salter, Lady Selborne, Marguerite Marrouh, Mrs. Mahood, Acquisition, King of Crimsons, Album plenum, Bouquet Fait, Beauty, Bronze Jardin des Plantes, Lady Carey, Venus, White Venus, Oracle, The Sultan, Madame Thérèse Clos, Cry Kang, Mdle. Moulise, M. Delaux.

**SEVEN FEET HIGH.**—Sarnia, Soliel Levant, Peter the Great, Mons. Ard-ne, Japonaise, Daimio, M. Barnett, M. Tarin, Phidias, Lady Margaret, Balmorean, Comtesse de Beuregard, Comte de Germiny, Baron de Prailley, Beverley, Golden Beverley, Lord Wolseley, Prince Alfred, Princess of Wales, Mrs. Heales, Mr. Bunn, Red Gauntlet.

**EIGHT FEET HIGH.**—Belle Paule, Sir Stafford Carey, Fair Maid of Guernsey, Le Sceptre Toulousain, Thunberg, Madame Bertie Rendatler.

**TEN FEET HIGH.**—Madame C. Audiguer.

—E. MOLYNEUX.

### LIVERPOOL—A GUIDE TO VISITORS.

PERHAPS more horticulturists will visit the city of Liverpool towards the end of this month, through the Royal Horticultural Society holding their great Show in Wavertree Park, than has ever before been the case in the history of the second city in the empire. On an occasion like this all who visit the "great Show" will be anxious to see all that is worth seeing in the city and neighbourhood. From past experience I know that much valuable time is wasted by strangers in a strange city, in finding out the best routes and places of interest. It is generally the case that not half is seen in the time at disposal as could be done if only they possessed some reliable guide to inform them where to go and how to save time with as little outlay as possible. On past occasions I have been in this predicament, and therefore understand the position in which all will be placed who visit Liverpool for the first time. I propose, with your permission, Mr. Editor, to write a few notes as a guide to all who need help in this matter.

It may be as well to state at the outset that passengers travelling by the London and North-Western Railway can alight for the Exhibition either at Elge Hill or Lime Street Stations, the first being within a few minutes' walk of the gates of Wavertree Park, and the other almost in the centre of the city. Passengers should come out of the station by the main entrance, cross the street, and then wait for the Wavertree Park tram, by which they can be conveyed close to the gates of the park for 2d., from this point the tents and implements will be visible. It may be stated that most of these trams have already printed in large letters on the front of them "To the Exhibition." There will be no scarcity of trams on this route, for already a considerable number of extra ones are running, in addition to the usual service which pass Lime Street station about every ten minutes. The large building on the opposite side of this station is St. George's Hall, which is open daily to the public and is well worth a visit. At the end of this street, or in William Brown Street, are arranged one after the other the Walker Art Gallery, Museum, and Free Public Library. The collections in these buildings deserve a visit by all who are interested in such matters and wish for some change from the garden and gardening. Just above the station is the Alexandra Theatre, where an evening may be pleasantly spent when other sights and places of interest cannot be seen.

Others travelling *viâ* the Midland, Great Northern, Manchester, Sheffield, and Lincolnshire Railways, as well as by the Cheshire Lines, will arrive at what is known as the Central or Ranelagh Street station. Not two minutes' walk from this station, on the right coming out, is the world-famed enterprising firm of Lewis & Co., the "friends of the public," as they term themselves or are termed. This establishment, nevertheless, is worth a visit if there are a few minutes or half an hour to spare, for it is undoubtedly one of the most wonderful and interesting establishments of its kind in Britain. Passing this, the visitor will find himself in Lime Street, and if a turn to the left is taken two minutes' walk will bring him to the point opposite Lime Street station, to which passengers arriving there have been directed to wait for their trim to convey them to the Exhibition ground. Re-tracing our steps again to the Central station a small street opposite will be noticed, which leads directly into Clayton Square, through which nearly all the trams pass for the Exchange and Pierhead. But in the Square in question there is the Prince of Wales's Theatre. If a turn to the right is taken out of this

Square St. John's Market will be seen, which is the principal flower and retail market in the city and which will be readily noticed by its quaint frontage. This is only a short street, which again leads to the point where we have advised visitors to wait for their tram. There yet remains the Exchange station in Tithebarn Street, into which passengers arrive who travel by the Lancashire and Yorkshire Railway Company's lines. The street named runs almost parallel with Dale Street. The last can be reached by passing through any one of the small cross streets, and from this street the tram for the Exhibition can be taken, as it passes down on its way to the point in Lime Street that has been previously mentioned. I have not the slightest doubt that visitors to Liverpool will find sufficient to interest them for the first day at the Royal Horticultural Society's great Show. The same route, however, is taken from the various points detailed for the Shipperies Exhibition, which can be seen from the grounds in which the "Royal" will be held. This must be visited, for it is one of the greatest and most interesting Exhibitions that has probably ever been held in this country. The number of the exhibits are great and very varied. It is so gigantic that it is utterly impossible to examine or even to see half the exhibits in the space of a day. It will be finished by the end of the month, and will then be at its best. The display within the grounds is not destitute of horticultural interest; on the contrary, some time could be profitably spent in noticing the collection of Alpine and other plants on the rockwork, which has been formed in the grounds by Mr. William Clapham, Bramhall Park, Stockport, to whom laying out a good portion of the grounds has been entrusted. This work has been well executed and the grounds rendered very attractive considering the difficulties that have been contended with and the state it was in only a few months ago. It must not be forgotten that the Exhibition grounds were a series of pits from which clay had been taken for bricks. Great credit is also due to our local florists and nurserymen who have largely contributed to the beauty of the grounds. Messrs. R. P. Ker & Sons, The Liverpool Horticultural Company, Messrs. T. Davies & Co., Turner Brothers, Messrs. F. and A. Dicksons & Sons, Chester, Caldwell & Sons, Knutsford, Messrs. J. Dickson & Sons, Chester, and others have each undertaken laying out and furnishing a large portion of the grounds. These contributions to the Exhibition are by no means its least interesting feature. I do not intend to particularise the various groups and their arrangement on the present occasion, but at some future time they shall be referred to again. Particular attention must be paid to the bank behind the rockwork, which has been sown with grass seeds by Messrs. Webb & Co. The portion of the grounds laid with turf cannot be compared with this bank for freshness and beauty; it has been well furnished and in a very short space of time.

That great engineering achievement the Mersey Railway Tunnel cannot be passed, for it is a work of vast magnitude, and should be seen by all who visit the city. The station is in James Street, about two minutes' walk from the Exchange, and only a very short space of time will be required to pass through it and back again. The intelligent and observant will be well repaid for the time spent and the outlay of a few pence. If the visitor desires, when he has reached Birkenhead he can examine the Park before returning; but for this purpose I advise a change—that is, when James Street station has been again reached, to turn to the right when passing out of the station into the street, which will lead to the landing-stage, which is said to be the finest of its kind in the world. This can be inspected, and then a trip taken by the Woodside Ferry steamer to Birkenhead for 1d. Directly the pay-gate is passed through a tram station will be noticed, and from this point the tram should be taken to the Park. This Park was laid out by Mr. Kemp, and is said to be probably the finest park in this country. It should be visited by all gardeners who have not seen it, for some hint or idea in landscape gardening may be gleaned. Those who visit it with this object in view will be abundantly repaid for their time and trouble. It is indeed a poor park or garden from which something cannot be learned, but in the park in question many a valuable idea may be gathered, and a fitting opportunity some day may present itself for putting them into practice.

A few pleasant hours may be spent by visiting New Brighton. The steamer leaves the landing stage every half hour, and returns at intervals of the same space of time. The trip takes twenty minutes each way, and the fare is 3d.

The Palace Winter Gardens which are on the beach are worth seeing, for in addition to glass houses filled with plants and fruit there is a remarkably fine grotto, a collection of birds, and always some kind of amusement. I am certain that Mr. C. Finnigan, the gardener in charge, will be very pleased to show the houses not open to the public to all gardeners who who may desire to see them, if they inquire for him after passing in at the entrance.

The docks must be inspected to form any conception of their magnitude. There is about eight miles of them altogether. A bus, or the "dock tram," as it is termed, runs the whole length, starting from near the landing stage, and running to the last one that has been open, for 2d. It is easy to find out the exact point this bus starts from by making inquiries at the landing stage. To inspect the docks it is the best plan to take the bus down, and walk back towards the city. However, those who visit the docks will have seen enough of them long before they reach the point from which they started, but when tired the bus can be taken again to complete the return journey. Any of the large Atlantic steamers that may be in dock about that time can be inspected by calling and asking for a ticket at the various offices in Water Street. This street runs in a direct line from the Exchange to the landing stage. The steamers in at that time can be found out by consulting the local daily papers. There is nothing about Liverpool which gives greater pleasure



to strangers than a thorough inspection of the extensive docks and thousands of ships from all nations that are crowded together in them. Some idea of the carrying trade of the nation is gained, and the commerce of a great and busy seaport like Liverpool.

For those who desire a thorough change from the garden and gardening, no more fitting opportunity could exist for a day's trip than to proceed by steamer to Llandudno or the Menai Straits. These steamers leave the landing stage daily, Sundays excepted, at 10.45 A.M., and the return fare is 4s., or 4s. 6d. respectively. If a longer sea voyage is desired, the Isle of Man may be selected. This will take up at the least nearly two whole days. The fare is equally reasonable, and the steamers leave the landing stage daily at 1 P.M., and return the following morning from Douglas at 9 A.M.

The principal object of gardeners when visiting a neighbourhood is to inspect all within reasonable distance that is of horticultural interest. It is wise and beneficial to have a change, hence the various features and enjoyable excursions are pointed out. I shall, however, in a future issue point out what gardens, nurseries, and parks within reasonable distance are worth visiting.—A CITY MAN.

### RUSHING INTO PRINT.

PERMIT me just to say, in reply to your "W. P. R.," that seeing I before said that he had probably no connection with my "W. P. R.," one would have thought that a single denial to the same effect on his part would have been sufficient, if he noticed it at all; but his innuendoes and the dates and circumstances, &c., which he gives, coupled with his initials and the qualifying statement that he fails to identify himself with the "incidents" related by me only "inasmuch" as anything he has written about others "has been free from exaggeration, and strictly accurate," gives one the impression that there may be more between the lines and not so many "W. P. R.'s" in the world after all. My story may be old, but it is true (it is exactly the age he states as the period since he was foreman in a lord's garden), and I would add that your "W. P. R.'s" newly manifested reluctance to "take up your space and his own time" on this topic, after occupying so many of your columns without hesitation, and spending so much of his own time investigating matters he does not appear to have any business with, outside of a desire to "rush into print," suggests reflections that need not be here expressed. I do not admire his late attempt to pillory in the public prints a gardener in a private place (whose identity may be guessed by many) because of private transactions, the true particulars of which "W. P. R." cannot vouch for himself, and I think you have done right to expunge the personal element from the discussion; but under the circumstances, my little story about my "W. P. R." was not, I think, inappropriate if old, though it does not seem to strike your "W. P. R." in the same light.—HEAD GARDENER.

### MESSRS. J. VEITCH & SONS' ORCHIDS.

THE orchidic triumphs of the Veitchian establishment would form a valuable and instructive record, and most of the numerous visitors who inspect the surprising collections at Chelsea must feel that there is an historical interest attached to them quite apart from their individual or collective beauty. Not only have great numbers of Orchids amongst other plants been introduced by the collectors dispatched by this firm either from Exeter or Chelsea, but they have still farther increased the numbers of cultivated Orchids by the many beautiful hybrids raised in their nurseries. Scarcely a season passes without some valuable addition is made in this way, and all orchidists now look with much expectant interest for the Veitchian novelties. The merits of many of these have been amply proved, and such plants as *Calanthe Veitchi* and *Cypripedium Sedeni* are favourites in gardens innumerable, while many others are destined to obtain a similar popularity as their numbers increase. The work thus performed in hybridising is invaluable, and the interesting paper read by Mr. Harry J. Veitch at the Orchid Conference last year detailed some of the difficulties that have attended the experiments and the successes that have rewarded their efforts.

June is one of the best months that could be selected for a visit to the Chelsea nursery, for the Orchids are flowering profusely, and there are also many other floral attractions. With the Orchids we are, however, now chiefly concerned, and a few notes upon these will give an idea what constitute the leading features. Visitors to this nursery now generally first inquire for the great *Cattleya* house which is so widely famed as the finest structure of its kind, and those who have seen it during the past week will not readily forget the effect. The house is 132 feet long, a lofty spacious structure occupied throughout with *Cattleyas* and *Lælias* in magnificent vigorous health, and bearing at the present time a total of over 1000 flowers, mostly grand varieties of *C. Mossii*, *C. Mendeli*, and *C. gigas*. These are very numerous, the blooms large, the colours bright and varied, some forms being as distinct as those which formerly received names. This practice is now discontinued, and the comparative merits are indicated by crosses, which is far preferable. It is not surprising that *Cattleyas* have become such favourites within the past few years; they are so free in flowering, produce such handsome blossoms, and are distinguished by such rich and soft crimson shades, that no other Orchids can equal them in these respects. Of *Lælia purpurata* large numbers of plants are grown, the varieties choice and beautiful, those with the pure white sepals and petals and crimson lips having a very striking appearance. The principal portion of the plants in flower are arranged to form

a bank on one side of the house, and they produce a charming effect, but there are numbers of other plants in flower scattered through the house with them; besides those already named being *C. Warneri*, *C. lobata*, *C. elegans*, and *C. Skinneri* all in capital condition. The last named is a much-valued plant, especially as its flowers show extremely well under artificial light, which probably is partly due to the crystalline lustre of the sepals and petals. A large and well-grown plant of *Cymbidium Lowianum* at the corner of the central bed has five long racemes of nineteen to twenty-three flowers each, or a total of about 100 flowers. A few *Oncidiums* and other Orchids are also introduced to vary the display; the lovely *Odontoglossum citrosum*, with its pendant panicles, adding materially to its beauty.

The central range of houses, which is entered from the fernery, is next visited, and there the plants in flower are very numerous in the several divisions. *Dendrobiums* are particularly abundant, some of the most useful being represented. The golden *D. chrysotexum* and *D. suavisimum* are very bright; in contrast with them being the white *D. Jamesianum* and *D. infundibulum*, the two latter being occasionally mistaken for each other, but they can be readily distinguished by the colour of the blotch in the centre of the lip, which is deep orange in *D. Jamesianum* and of a lighter yellowish tint in *D. infundibulum*. *D. crystallinum*, the ivory white *D. eburneum*, the curious and delicate *D. tortile*, the white, free, and useful *D. Deari*, and the handsome white and gold *D. thyrsoiflorum* are attractive; but perhaps the most pleasing of all is the floriferous *D. Bensoniæ*, which is most varied, the sepals and petals pure white, but the yellowish lip has a deep maroon blotch at the base, which differs considerably in size and is sometimes divided, so that there are two blotches. This useful and easily grown *Dendrobium* ought to be much more generally grown, for it is one of the most distinct and best. With such other well known forms as *crassinode* and *crystallinum* it was introduced by Messrs. Veitch & Sons through their correspondent Lieut. Col. Benson. In an adjoining house are some good plants of *Anguloa Clowesi*, which has been fancifully named the Cradle Orchid, though others have also termed it the Tulip Orchid, and it may be imagined that if there were any real resemblance to such diverse objects as Tulips and cradles its appearance would be rather peculiar. Its bright yellow flowers are, however, very notable, and they last for a great length of time. The Butterfly *Oncidium*, *O. Krameri*, is an extremely remarkable mimic, and one plant is in uncommonly good condition with seven scapes of large richly tinted brown and gold flowers. The white drooping *Angraecum Chaillanum*, the old but beautiful *Camarotis purpurea*, and the brightly flowered but seldom seen *Broughtonia sanguinea* constitute other attractions.

At the top of this range is a house of *Cypripediums* and *Phalænopses*, with a brilliant bank of the orange-scarlet *Epidendrum vitellinum majus*. Amongst the *Cypripediums* the long-petalled *Stenei lævigatum* and *selligerum* are very handsome; the pretty white *C. niveum*, and those fine forms of the *C. superbiens* or *Veitchi* type *C. ciliolare* and *superciliare*, are also in flower, together with the majestic *C. Lawrencianum* and the lovely hybrid *C. Schoederae*, though the rosy-tinted flowers of the latter are now past their best. The white or softly tinted *C. Sedeni candidulum* is still flowering freely. Of *Phalænopses* there is a pretty display of the small-flowered *P. sumatrana* and its pretty relative *P. Mariæ*, which also bears some resemblance to *P. Luddemaniana*, though quite distinct. It is one of Mr. F. W. Burbidge's discoveries, and bears his wife's name. *P. violacea*, *P. amabilis*, and *P. rosea* are flowering with *P. speciosa*, the latter on a block, with two spikes of four and five flowers each. *Cœlogyne Massangeana*, *C. Dayana*, and *Dendrochilum latifolius*, a broad-leaved species with long racemes of flowers, and the new *Oncidium Jonesianum* are equally noteworthy.

The cool house is highly attractive, some hundreds of racemes of the best *Odontoglossums* constituting a superb display. *O. Pescatorei*, *O. crispum*, *O. cordatum*, *O. maculatum*, *O. vexillarium*, *O. luteo-purpureum*, *O. nebulosum*, and *O. gloriosum* are the principal species, some grand varieties of these being represented. The bright yellow *Oncidium concolor*, the orange-scarlet *Epidendrum vitellinum majus*, the crimson *Masdevallias* of the *Harryana* type supply agreeable relieving tints.

In other houses, *Gloxinias*, *Imantophyllums*, and the showy *Anthuriums* afford exhibitions of special beauty that should be seen by all interested in these plants.

### FIRM SOIL THE BEST.

IN your last issue, on page 450, "Kitchen Gardener" writes a very sensible article. I am of the same opinion as he, for I think there is a great number of plants ruined by not being potted firmly enough. Take for instance Strawberries, which require very firm potting, yet I have lived with some noted gardeners that would not have their Strawberries potted firmly, but I have had the fortune to live in a place where a large number of Strawberries were forced, and where they were potted as firmly as they possibly could be; hence I have seen both sides of the question, and have had the opportunity of watching the results. I have found that where loose potting was done they not only formed very indifferent roots, but of course made very poor crowns, and then when forced in the spring the result was a very poor crop of fruit, when, on the other hand, those that were potted quite firmly always formed thick sturdy roots and well ripened crowns; and as it is well known unless the plants are well ripened and in a healthy condition there can be no good fruit when forced.

Again, even such tender-rooted things as *Mignonette* enjoy firm potting, although I have, as a rule, found this plant potted rather loosely but I have seen very fine plants grown in 10-inch pots that were so firm



that not the least impression could be made on the surface with the thumb. As regards kitchen gardening, I think many gardeners would meet with much better results if the soil was made firmer when the crop was sown or planted, especially in light sandy soil. Onions, for instance, never do so well in a light loose soil as they do in a moderately heavy and well firmed soil; but at the same time the soil should not be too rich, for I think much better bulbs are grown in a moderate soil; although if not quite so large, they are much firmer and therefore better for keeping.

I also agree with your correspondent in having the soil moderately firm for Carrots, Parsnips, &c., although it is not, as a rule, practised, but I have found that in "exceptions to the rule" such vegetables have turned out with much better and cleaner roots.—AN OUTSIDE FOREMAN.

### MEALY BUG.

OF all the insect pests that infest plants this is the most troublesome. It is so uninviting, that the only member of the feathered tribes that I have observed will have anything to do with it is the blue titmouse, which, along with the long-tailed titmouse, is so useful in clearing Apple and Pear trees of mussel scale, but this has invariably succumbed to its partaking of the mealy bug. Several times have I had the blue titmouse entering stoves by the ventilators to find the mealy bug, and in every instance the birds have died. Whether poisoned by the mealy bug or through the confinement I am not prepared to state with certainty, but Robins survived for weeks in the same structures, and they never, that I could see, would have anything to do with this insect.

Mealy bug is known to everyone cultivating plants requiring a stove or an intermediate temperature, and though not increasing so rapidly in a greenhouse, is by no means uncommon in those and conservatories, in fact it is often seen on plants at exhibitions. A correspondent, "Observer," many years ago, could see nothing for it but starving the insects out, and he wrote as one having had much to do with mealy bug in plant and fruit houses. I have never tried this, which seems a "perfect cure," through want of opportunity, but it appears reasonable, only it is difficult to persuade employers that the only certain method of eradicating mealy bug from stoves and vineries, where the pest has had its home for years, is by starving out. I know the roofs of vineries are more fixed of late than they were some years ago, most old gardeners considering that rain from the clouds was particularly invigorating and cleansing, and we know equally well that Vines were syringed much more frequently than now. Bug in vineries and on Pines was considered a great humiliation. To clear it from the Vines no trouble was considered too great. Compositions of soot, lime, sulphur, tar, tobacco water, nux vomica, urine, clay, &c., were requisitioned; insecticides; no end of patented "cure alls;" and yet mealy bug is as lively as ever.

Mealy bug does not much infest plants in greenhouses or conservatories. They are kept too cold and too moist, and there is not much cause for anxiety in cool vineries, though it is more to be dreaded in the Vines than in the climbers of the conservatory, as the season of the Grapes ripening necessitates a dryness and warmth highly favourable to the insect. We no sooner pass from houses of Cape, Chinese, or New Holland plants, than we have to face this loathsome pest. Mealy bug swarms on Gardenias and Stephanotis; it likes no place so well as the choicest cluster of Grapes, and delights in showing itself beneath the recurved leaf-crowns of Pine Apples. It glories in feasting on Melons; indeed the difficulty is not so much as to what it does like, as to what it does not.

The mealy bug's natural enemy, as I take it, is water. For plants infested with mealy bug I advocate thorough cleansing with water, forced upon them so as to dislodge the insects, and at a not less temperature than 120°, nor exceeding 140°, and keeping it from the roots by tarpanlin or other waterproof material in the case of plants in borders or pots or tubs that cannot well be laid on their sides. The sudden heating kills the insects it comes into direct contact with; at any rate, it dislodges them. Plants in pots of moveable size may be leaned over a wide shallow vessel, and the plants turned round can be syringed with the hot water both on the under and upper side of the leaves, there being no excuse for not clearing the mealy bug from every part of the plants. This only needs repeating to entirely banish mealy bug; but the bug having possession of the house it will not be long before it finds its way to the plants, and more work will be made, for as the house is so are the inmates, and *vice versa*. Limewashing walls and clearing out spent fermenting materials—in fact, thorough cleanliness all round, is the way to excel in the cultivation of plants. Syringings, to be of use, must be thorough, or they are ineffectual for the destruction of insects. Some plants cannot well be syringed, such as bulbous and other plants; but they can be sponged with water, and if this is done with care and frequently mealy bug cannot make headway. Plants with hairy leaves, such as Gloxinias, Achimenes, Tydæas, &c., will not bear hot water, and sponging is out of the question, but the "catch and kill" system never fails of its object. Take any plant infested with mealy bug and stand it outdoors when there is a prospect of a thorough drenching from thunder rain, and it will derive more cleansing benefit than from a week's sponging and brushing with insecticides. I do not know what water contains besides ammonia as it comes fresh from the clouds, but I do know that a thorough day's rain cleanses foliage of insects better than any insecticide, and is far more beneficial to the roots than artificial waterings. Much more might be written about plants and fruit trees under glass having the benefit of exposure to rain and as much cold as is safe.

I have no wish to decry insecticides; they are useful, and as a rule not costly. To single out any would obviously be invidious; but there are remedies within the reach of all that I may allude to without fear of

jealousy. Next to water the best mealy bug destroyer is no doubt ammonia, allied with the potash and soda as present in soapsuds. The soapsuds are so variable in strength as to be only available for the most hardy plants, and ammonia is so volatile as to be difficult of application in safe quantities. We may, therefore, dismiss it for the present, though I hope at some future time to refer to it; only I would like to remark that the ammonia vapour we find so useful against red spider is also valuable as an agent in ridding houses of mealy bug. Oils next claim attention. Petroleum has a high reputation as an insecticide which it justly deserves, and as a destroyer of bug it is most useful. The difficulty is mixing it. Soapsuds when clear are good, but these are not always obtainable, so that we can easily make a solution of softsoap 2 ozs. to the gallon and quarter of an ounce soda per gallon. To every four gallons of this use a quarter of a pint of petroleum. This will float, but by stirring briskly with a broom-handle, or by filling a syringe and expelling the liquid into the vessel sharply, so as to force the petroleum into the soapy solution, it can readily be applied by a second person to the infested plants. If it must be done by one person, then alternate ejections must be made into the vessel and on to the plants. These should be laid on their sides over a tub or tin large enough to receive the mixture as it drips from the plants, turning them over or round so as to thoroughly wet every part of the foliage on both surfaces and every part of the wood. The mixture should be used as hot as the hand can bear, and kept from the roots as much as possible. Shake the plants over the vessel so as to free it of superabundant moisture and prevent much running down to the roots when stood erect, and stand aside until the whole of the plants are gone through, and if possible in another structure until dry. The house must then undergo a thorough cleansing, syringing the whole of the roof, stages, everything with the stuff except the glass parts, which should have the softsoap omitted, driving it into every hole and crevice. Allow to dry; then if there be any bug paint the whole of the woodwork with petroleum, rubbing it well into every crevice, leaving no part untouched, and limewash the walls. The petroleum will soon pass off, when the plants may be examined, and if there is any bug left repeat as before, before returning to the house. It would be a good thing to have the house painted if it need it, not being afraid of turpentine. Examine the plants once a week. If the bugs are few the "killing" system will answer, but if they are increasing repeat the petroleum application, which, however, will not be required within six weeks, and more distantly in winter. It must, however, be followed up if a riddance is to be effected. Plants out of pots are worse to deal with, but they may be loosened from the trellises.

We cannot make any use of the petroleum in destroying mealy bug on Vines during their growth, and up to the clearing off of the Grapes. Where bug, however, has possession, no satisfactory Grapes will ever be grown until it is destroyed, hence the Grapes should be cut so that the Vines and house can be thoroughly cleansed, and in the manner advised for plants. The Vines should be lowered from the trellis so as to wet the leaves on the upper as well as lower surfaces, and repeated three or four times in bad cases, allowing to become dry between each, and this seen to again before the leaves fall will be the means of preventing any from seeking winter quarters. Thorough cleansing of the Vines and house must be attended to at once after the foliage is down, removing the top few inches of the border and replacing with fresh material. Before the Vines are started, syringe them with the petroleum, omitting the softsoap, as that is best kept off the glass, and repeat before the buds have burst their wool-like envelopes. Syringe well in spring, or after starting, with water, one good cleansing being of more value than a dozen bedewings, and repeat after setting and thinning. We need not fear sediment if only clear rain water is used. In addition, make a close examination of the Vines and foliage once a week. A small pial with a piece of string round the neck and a wire hook will make all handy of operating with methylated spirit. A small camel-hair brush or pencil dipped in it and applied to the bug will destroy it. This is the best plan of dealing with bug in bunches of Grapes.

About a tablespoonful of turpentine to a quart of water, in which half an ounce of softsoap has been dissolved, makes an excellent mealy bug destroyer, but it is difficult to keep it mixed, requiring almost constant agitation. It should be applied with a brush carefully to the infested parts only. Petroleum in the proportions given, with softsoap and soda, may also be used for cleansing plants of mealy bug, scale, &c.

More or less injury is inflicted on the foliage by the use of petroleum, turpentine, and other fixed oils, and when made soluble they lose their efficacy as insecticides, therefore we must submit to the injury. This, happily, when care is taken in its application, is slight. The petroleum seems to act injuriously by closing the pores, hence old leaves are brought down, their ripening being hastened; but the young foliage is not much affected, provided care is taken to keep it mixed with the water or soapy solution. When carelessly applied some parts will be covered with the petroleum whilst others are comparatively free; the foliage will be injured in the one case, and the insects will get off scot-free in the other. The petroleum requires to be kept from the roots, as the fixed oils do not decompose, but retain their natural properties, consequently are injurious. With care and judgment in application petroleum is a cheap and efficacious insecticide, without equal, so far as I know, for the eradication of mealy bug. Brief allusion to the value of potash and soda in soapsuds has been made, the value of softsoap as an insecticide resting on those properties, and to which we must attribute the value of softsoap solutions in the destruction of mildew. Mention has also been made of ammonia, than which I think no more powerful insecticide exists, if we knew in what form and strength to use it. Alums have, I think, been used for some time on the Continent, and with success in the destruction of caterpillars,



aphides, and American blight. If the alum solution will destroy American blight there is little fear of its not freeing plants of mealy bugs. Both have protection, which render them difficult to reach with an insecticide. The white cotton-like substance exuded by American blight acts as a covering for the insect, and mealy bug is covered with meal, and forms cocoons of cotton-like substance in which the young are reared. The covering in both American blight and mealy bug are impervious to water unless applied with considerable force, which renders their destruction difficult, as the insecticide, to be of value, must be brought to bear upon the insects. An ounce of alum dissolved in boiling water, and cold added so as to make a gallon, may be tried, and its effect noted upon different insects and plants.

Sal ammoniac is also likely to prove useful against insects and mildews. It and sulphate of ammonia are soluble in water, and might be tried as insecticides at the rate of half an ounce to a gallon of water. The ammoniacal liquor of the gasworks is a valuable insect killer; diluted with sixteen times its bulk of water it ought to prove safe for most plants. These are mentioned with a view to encouraging experiments. Insecticides should act like rain—cleanse the foliage of insects and other impurities; clear the pores, so that the nutriment would be more highly assimilated, which, with the enriching the soil, would contribute to the increased health and vigour of the plants.—A YORKSHIRE GARDENER.



AT a general meeting of the ROYAL HORTICULTURAL SOCIETY held June 8th, Maxwell T. Masters, Esq., M.D., F.R.S., in the chair, the following candidates were unanimously elected—viz., Colonel Hugh Baillie, Johannes Bergmann, L. Bryett. Besides the above, Mons. A. Bleu was elected a corresponding member.

— MESSRS. JAMES CARTER & Co. send us specimens of their new AMERICAN KNICKERBOCKER RADISH, and invite us to observe that, although the plants have commenced running to seed, the root retains its edible properties, whilst all other kinds grown near it have become quite pithy and useless. They also point out that its great size must render it valuable to large consumers. We have never seen Radishes so large and at the same time so firm and crisp as the specimens in question.

— MESSRS. JOHN LAING & Co., Forest Hill, have sent us their gorgeous coloured plate of the Royal Family of Begonias, the varieties being alike remarkable for size, form, and colours. Such flowers could not have been anticipated by the most sanguine of hybridisers a few years ago, yet we believe there are some 7 inches in diameter now in cultivation.

— WE observe by the schedule forwarded to us that the BRIGHTON CHRYSANTHEMUM SOCIETY'S SHOW will be held on November 16th and 17th; also that substantial prizes are offered, notably in the classes for groups, in which the first prize is £5, and for forty-eight cut blooms £10, the remaining prizes in this class being £6, £3, and £2. Mr. Longhurst, Church Road, Hove, is the Secretary.

— THE annual displays of CALCEOLARIAS AT BEDFORD HILL, BALHAM, are always worthy of note, not only on account of the admirable manner in which the plants are grown by Mr. Rapley, but for the excellence of the varieties. The plants are not quite so numerous and large this year as usual, the long winter proving inimical. There is, however, no depreciation in the quality of the flowers; but, on the contrary, varieties of great richness and clearness have been added. Some of the pure yellow varieties are magnificent, quite out-distancing the once famous Cloth of Gold. Mr. Rapley is to be congratulated on his success in establishing such a fine strain of these handsome flowers.

— THE magnificent collection of ORCHIDS belonging to ARTHUR POTTS, Esq., HOOLE HALL, CHESTER, the fame of which has extended far beyond the provinces, is on view at the Eastgate Street premises of Messrs. F. and A. Dickson & Sons, Chester, during this, the yeomanry, week in that city. The collection is an extensive one, and Mr. Potts has generously thrown open his garden and grounds to those interested in horticultural matters. Tickets can be obtained free at Messrs. F. and A. Dickson & Sons. Exhibitions of this character are most interesting and in every way commendable.

— THE GARDENS OF THE INNER TEMPLE are now open to the public nightly from six until nine o'clock, the permission thus granted by the henchers being more especially intended for the benefit of the poor children inhabiting the surrounding closely populated neighbourhoods. Hundreds of these poor children may be seen every evening playing upon the large and well-kept lawn in the centre of the gardens, and it is gratifying to state that, although so many enter the gardens nightly, there has not been a solitary instance hitherto of damage or injury to the trees, shrubs, or plants.

— THE Richmond Local Board have decided to purchase the Duke of Buccleuch's estate, which was recently offered for sale at £30,000, and to reserve a portion of it for a public recreation ground. It is situated upon the slope immediately beneath the terrace, and if the whole of it had been built upon as was intended the delightful and famous prospect would have been deprived of the greater portion of its beauty. The local magnates who have favoured the scheme deserve the thanks not only of the townspeople, but of the public generally.

— MR. W. N. CRAIG WRITES:—"There is at present in bloom at Park Side Gardens, Kendal, the residence of J. E. Openshaw, Esq., a fine collection of HERBACEOUS CALCEOLARIAS. The plants number about 100 from 3 to 4½ feet in diameter, and are perfect pictures of health and vigour. The display is well worthy of a visit, and once seen will not be readily forgotten. The condition of the plants reflects the greatest credit on the painstaking head gardener (Mr. T. Railton), who has made Calceolarias a special study, and appears to have achieved complete success in their culture." The flowers received are well grown and very diversified and bright in colour.

— WE have received the well arranged and comprehensive schedule of the HULL, EAST RIDING, AND NORTH LINCOLNSHIRE HORTICULTURAL SOCIETY. The Exhibition will be held in the Hull Botanic Gardens on July 14th, 15th, and 16th. We are informed that two gold and two or more silver medals will be awarded. The chief class is for ten stove and greenhouse plants in bloom (Orchids excluded) and six ornamental foliage plants, the prizes being—first, £15 and the Society's gold medal; second, £10; and third, £5. Other good prizes are offered in the open classes and invite good competition. The schedule numbers 127 classes in six sections, and there are to be trials of mowing machines and garden engines. A large and diversified exhibition may be expected. The Right Worshipful the Mayor of Hull (Mr. Alderman Williams) is President of the Society; George Bohn, Esq., C.E., Chairman of the Committee; and Messrs. E. T. Sharp, James Dixon, and P. MacMahon, Curator of the Botanic Garden, Honorary Secretaries.

— A CORRESPONDENT writes:—"It is customary with many who cultivate choice exotics to despise our native flowers, probably because they are common and do not possess any pecuniary value. Happily there has been some alteration in taste lately, and in floral decorations these simple familiar flowers are occasionally employed in preference to the more brilliant and costly rarities. But to thoroughly appreciate such plants they must be seen in their native luxuriance, as wildings and in masses. At this time a common aquatic plant, RANUNCULUS AQUATILIS, is flowering profusely, and in some places it has a remarkable appearance. This is especially so in one of the lakes in Richmond Park, a large portion of which is covered with its pure white flowers. At a little distance on a still day we might imagine that it was a sheet of clear ice lightly covered with freshly fallen snow. It would no doubt be scouted as an absurd notion to propose establishing such a weed in lakes or shallow water, nevertheless it would add to their beauty in some places."

— DURING the recent riots in Chicago a store was sacked containing a quantity of alcoholic beverages; amongst these were, however, some bottles of WINE OF COLCHICUM, which somewhat resembles sherry in colour, but is a deadly poison. The consumption of this liquor caused the death of eight persons, and others are not expected to survive. The Meadow Saffron, Colchicum autumnale, is well known to be one of our most poisonous plants, very acrid narcotic properties being present in the bulbs, and preparations of these have been employed in small quantities for medicinal purposes, especially in the treatment of gout and rheumatism. It is said that "the Turks infuse the flowers in wine to add to its inebriating effects, and in autumn the peasantry of Carniola eat the bulbs with impunity."

— GARDENING APPOINTMENT.—Mr. Jesse Jones, late foreman at Brynkinalt, Chirk, near Ruabon, has been appointed gardener to C. H.



Day, Esq., Terrace House, Southampton. Mr. J. Garrett, who for several years has had charge of the floral garden and ornamental department in the Royal Gardens, Kew, and was formerly of the Royal Horticultural Society's Gardens, Chiswick, has been appointed head gardener to A. B. Mitford, Esq., C.B., Batsford Park, Moreton-in-Marsh, Gloucestershire.

— AT the meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday the 16th instant, at 7 P.M., the following papers will be read:—"Note on a Sudden Squall, January 13th, 1886," Robert H. Scott, M.A., F.R.S., F.R.Met.Soc. "The Floods of May, 1886," by F. Gaster, F.R.Met.Soc., and W. Marriott, F.R.Met.Soc. "On Atmospheric Pressure and its Effect on the Tidal Wave," by Capt. W. Nelson Greenwood, F.R.Met.Soc. "Meteorological Results at Levuka and Suva, 1875-1885, with Notes on the Climate of Fiji," by J. D. W. Vaughan, F.R.Met.Soc.

— FROM an abstract of the reports of the Gardening Societies forming the YORKSHIRE ASSOCIATION OF HORTICULTURAL SOCIETIES we find the Barnsley Society numbers 110 members, the Leeds Society 133, the Rotherham Society 48, the Sheffield Floral Society 90, the Hallamshire Society 40, and the Wakefield Paxton Society nearly 200 members. The meetings of this Society are held at the Saw Hotel, Westgate, every Saturday evening at eight o'clock, when lectures or essays are given. One of the principal features of the Society is the library, which contains about 300 volumes of scientific and practical works. During the summer an exhibition of cottagers' window plants and competitions for naming wild flowers is held, which gives great encouragement to the working class and school children to cultivate and study flowers. The Rev. F. D. Horner's excellent address on the objects of the Association and lecture on the Auricula are incorporated with the Report.

— ACCORDING to the ABSTRACT OF THE AGRICULTURAL RETURNS we find that 197,539 acres were under fruit culture in Great Britain in 1885—an increase of 2816 acres over 1884. The area of market gardens last year was 59,473 acres, an increase of 6698 acres over the year preceding. Nursery grounds are represented by 12,594 acres in 1885, an increase of 82 acres on 1884. The increase under fruit culture in England is 2587 acres, in Wales 67 acres, and in Scotland 72 acres. In England there was an increase of 6022 acres of market gardens over the preceding year; in Scotland an increase of 543 acres; in Wales a decrease of 67 acres. In nursery grounds the increase in England was 156 acres; but Wales shows a decrease of 3 acres, and Scotland of 61 acres.

— MR. WILLIAM CATTANACH, gardener to W. Connal Black, Esq. of Kailzie, Peebles, sends the following WEATHER REPORT FOR PEEBLESHIRE:—"The winter of 1885-86 will long be remembered in this locality for its length and severity. On September 1st the thermometer registered 10° of frost, killing all softwooded bedding plants. Autumn cuttings of Pelargoniums, &c., were scarcely to be had. Potatoes were killed. The weather was generally good till November 15th, when 10° of frost was registered; 16th, 17°; 17th, 17°; 18th, 20°. Fresh weather set in up to December 6th, when 8° was registered; 7th, 22°; 8th, 20°. Snow fell on the 9th; on the 10th, 22°; 11th, 14°. Weather very changeable with occasional frosty nights to the end of the month. Snow fell to the depth of 2 inches on the 29th. Total amount of frost for December, 120°. January began with storms of snow and rain, and all through the month was most remarkable for its changeableness from mild to extreme cold and frost, the lowest registers being on the 6th, 22°; 7th, 30°; 18th, 28°; 19th, 30°; 20th, 28°. Total amount of frost for January, 218°. Although the frost was not so severe in February as in January, it was of longer duration. Frost on twenty-four nights, with a total of 182° for the month. On the 3rd, 4th, and 5th there were respectively 14°, 27°, and 27°. There was a good deal of snow lying nearly all the month. March came in "like a lion," on the 1st and 2nd snow fell to the depth of 12 inches, with a strong gale of wind from E.N.E., and up till the 18th the cold was as intense as in January, the total amount of frost for March being 157°. April was a cold month with strong winds; little or no frost until the 30th, when 8° was registered, and on May 2nd, 5°. All winter vegetables, such as Broccoli, Brussels Sprouts, Savoye, and even Leeks, were almost totally destroyed; also all autumn-sown vegetables, plants, Roses and Rhododendrons (ponticum), and common Laurels, have all suffered severely. Thermometer from Negratti & Zambra, London; registered at Kew; placed 3½ feet above ground facing north, and stands about 550 feet above sea level."

— A CORRESPONDENT sends us the following clipping from the *Standard* on BACTERIA in soil:—"The vindication of the character of

humus as an important source of crop nutrition, disparaged by Liebig, with his mineral theory, may be said to have resulted from the researches of MM. Schloesing and Muntz, continued by Mr. Warrington of Rothamsted. These chemists have fully demonstrated the important action known as nitrification, carried on by bacteria, to which the same *Micrococcus nitrificans* has been given, the result being the production of nitrates in soils rich in organic matter or humus. In order to test the importance of this process of soil-fertilisation, or rather of conversion of elements of fertility from an inert state to one suitable for the nourishment of plants, Professor Laurent of the School of Horticulture, Vilvorde, Belgium, last year carried out some careful experiments, a record of which has been sent to us. Buckwheat was grown in pots under four different conditions—namely, 1, In natural soil; 2, In earth first sterilised, but afterwards inoculated with bacteria of the soil; 3, In sterilised soil; and 4, In sterilised soil with the addition of chemical manures. The conditions of the experiment were such as to exclude the inoculation of the sterilised soils in the third and fourth series. On the occasion of the first observation recorded the plants of the first series were the most robust; those of the second were healthy, but not as forward as the first; while the plants in the soil free from bacteria were comparatively puny; though those of the fourth set, having the aid of artificial manures, were superior to those of the third. The results were summarised in the following table, averages being given:—

Series.	No. of Leaves, Aug. 28.	No. of Leaves, Sept. 11.	No. of Flowers, Sept. 13.	No. of Seeds, Sept. 29.
1	9	15	126-83	94-67
2	6	13-17	128	96
3	3-62	6-62	58	23-5
4	4-6	10	88-4	66-75

Thus the action of bacteria in nitrifying the organic constituents of the soil had a greater fertilising effect than chemical manures consisting of nitrate of potash, undissolved phosphate, sulphate of lime, sulphate of magnesia, and sulphate of iron."

#### ROYAL NATIONAL TULIP SOCIETY.

THIS Exhibition took place as usual in the Gardens of the Manchester Botanical and Horticultural Society at Old Trafford, on the 5th inst., and proved to be much larger in extent than was at first expected, a greater number of flowers being staged than last year, but very many of them undersized. The cool weather of the preceding few days had saved the Rev. F. D. Horner's flowers for this exhibition; the blooms in his beds were generally past their best, yet he was enabled to show in good form, and carry off the leading honours of the day. It is worthy of note that in the extreme north of England Mr. Horner's head of bloom was nearly over; but in the Oldham district Mr. Barlow found great difficulty in obtaining enough blooms sufficiently forward to enable him to compete in a few of the leading classes. The flowers were arranged as usual on tables placed down the centre of the new show house, and the weather was all that could be desired.

The class for the best twelve dissimilar blooms, two feathered and two flamed flowers, brought eight stands, the Rev. F. D. Horner, Longfells, Carnforth, Kirby Lonsdale, being first with the following varieties in fine quality:—Feathered Bizarres: Commander and Dr. Dalton. Flamed do.: Sir Joseph Paxton, a variety that rarely fails to be good, and Orion, very bright. Feathered Roses: Nancy Gibson, in the best form, and Annie McGregor. Flamed do.: Annie McGregor and Mabel. Feathered Byblœus: Mrs. Cooper and Talisman. Flamed do.: Talisman and Duchess of Sutherland. In case of any misconception arising on the part of our readers we may state that a feathered flower only has no flame or beam of colour running up the centre of the petal, and that a flamed flower must of necessity be feathered also; also that the same variety, such as Annie McGregor or Talisman, for instance, may be shown as feathered only, and also as flamed, according to the character it assumes for the time. Second Mr. James Thurston, Springfield, Wolverhampton, with feathered biz. *Asclepias*, a new and bright-looking flower raised by the exhibitor, and Sulphur; fld. do., Dr. Hardy and Sir J. Paxton; feath. rose, Mrs. Thurston, a very pleasing and attractive flower; and Modesty; fld. do., Mabel and Lady C. Gordon; feath. hyb., Adonis and seedling 89/3; fld. do., Talisman and Constant. Third Mr. D. Woolley, Millgate, Stockport, with feath. biz. Mrs. Miller and Sir J. Paxton; fld. do., Merit and Sir J. Paxton; feath. rose, Julia Farnese, with broad and deep coloured feathering, and Heroine; fld. do., Annie McGregor and Mabel; feath. hyb., Bessie and seedling; fld., Adonis and seedling. Fourth, Mr. W. Kitchen, Marple; fifth, Mr. John Wood, Royton.

In the class for six varieties, one feathered and one flamed in each class, there were eight competitors for eight prizes, the Rev. F. D. Horner being again first with feath. biz. *Masterpiece*; fld. do., Orion; feath. rose, Modesty; fld. do., Mabel; feath. hyb., Mr. Cooper; fld. do., Duchess of Sutherland; a very pretty and even lot. Second Mr. D. Woolley with feath. biz., Sir J. Paxton; fld. do., the same variety; feath. rose, Julia Farnese; fld. do., Mabel; feath. hyb. seedling; fld. do., Adonis. Third Mr. J. Thurston with feath. biz. seedling 76/7; fld. do., Sir J. Paxton; feath. rose, Modesty; fld. do., Lady C. Gordon; feath. hyb., Adonis; fld. do., Talisman. Fourth Mr. John Wood. Fifth Mr. W. Kitchen. Three other prizes were awarded.

There was a class for six blooms, also for six Tulips, the competition confined to half-guinea subscribers, and seven stands competed. Mr. Hugh



Housley, Stockport, was first with feath. biz. Royal Sovereign, and fld. do. Sir J. Paxton; feath. rose, Leah; fld. do., Triomphe Royale; feath. hyb., Violet Amiable; fld. do., Lord Denman. Second Mr. R. Wolfenden, Royton, Oldham, with feath. biz. Masterpiece; fld. do., Excelsior; feath. rose, Heroine; fld. do., Mabel; feath. biz., Violet Amiable; fld. do., Lord Denman. Third Mr. A. Fearnley, Lowton, Leigh. Third Mr. Wright Prescott, Lowton.

In the class for three stands of feathered Tulips there were fourteen competitors, the Rev. F. D. Horner being placed first with biz. Dr. Dalton, rose Modesty, and byb. Mr. Cooper—a charming trio; second Mr. D. Woolley with biz. Mrs. Miller, rose Mrs. Lea, and hyb. seedling; third Mr. William Dymock, Stockport, with biz. Lord Randolph, a very fine new feathered flower, rose Mabel, and byb. seedling; fourth (exhibitor's name not given); fifth Mr. Thomas Wood; sixth Mr. James Knowles.

There were eleven stands of three flamed Tulips, Mr. James Thurston being placed first with good blooms of biz. Sir J. Paxton, rose Mabel, and byb. Adonis; second Mr. H. Housley with biz. Sir J. Paxton, rose Annie McGregor, and byb. Lord Denman; third Mr. J. Wood with biz. Sir J. Paxton, rose Aglaia, and byb. Lord Denman; fourth Mr. D. Woolley; fifth Mr. W. Kitchen; sixth Mr. Thomas Wood. Then there was a class for two blooms, one feathered and one flamed, for maiden growers only; and in addition to three prizes Mr. Barlow offers a quantity of valuable Tulip bulbs to all who enter. There were but two competitors, Mr. Jas. Wood being placed first with fld. biz. Dr. Hardy, and feath. byb. Maid of Orleans; second Mr. T. Holden with feath. and fld. roses, both unknown.

In a similar class open to all fifteen pairs of flowers competed. The Rev. F. D. Horner being again first with fld. biz. Orion, and feath. byb. Mrs. Cooper, both in excellent form; second Mr. H. Housley with fld. biz. Sir J. Paxton, and feath. biz. Royal Sovereign; third Mr. James Boydell with fld. biz. Sir J. Paxton, and feath. rose unknown; fourth Mr. W. Prescott; fifth Mr. J. Thurston; sixth Mr. R. Wolfenden.

Then came the classes for single blooms, and in these a large number were staged, from 100 to 200 in each of the six divisions. Feath. biz. from Mr. S. Barlow with George Hayward; second Mr. Prescott with Lord Lilford; third Mr. Jas. Knowles with Royal Sovereign; fourth Mr. S. Barlow with Sir J. Paxton; fifth Mr. Morris with Duke of Devonshire; sixth Mr. Barlow with Masterpiece; seventh Rev. F. D. Horner with Agamemnon, one of the late Mr. Hepworth's seedlings; eighth Mr. Barlow with William Wilson. Feathered Roses: First Mr. D. Woolley with Heroine; second Mr. S. Barlow, unknown; third Mr. Fearnley with Industry; fourth Rev. F. D. Horner with Charmer; fifth Mr. D. Woolley with Mabel; sixth Mr. Knowles with Heroine; seventh Mr. D. Woolley with Alice; eighth Mr. Morris with Industry. Feath. Byb.: First Mr. D. Woolley with seedling; second Mr. Knowles with Adonis, and third with Bessie; fourth Mr. Prescott with Guido; fifth Mr. Dymock with Lady Denman; sixth Mr. Woolley with John Hunt, and seventh with a seedling; eighth Mr. Kitchen with Violet Amiable. Flamed Biz.: Mr. Boydell with Bargate (Sir J. Paxton); second Mr. Thurston with Dr. Hardy; third Mr. S. Barlow with Excelsior; fourth Mr. R. Wolfenden with Mrs. Wilson; fifth Mr. Jno. Wood with Dr. Dalton; sixth the Rev. F. D. Horner with Sir J. Paxton; seventh Mr. S. Barlow, unknown; eighth Mr. Fearnley with Duke of Devonshire. Fld. Rose: First Mr. Housley with Triomphe Royale; second Mr. S. Barlow with Mabel, and third with Lady C. Gordon; fourth Mr. Housley with Leah; fifth Mr. Kitchen with Bertha; sixth Mr. Housley with Aglaia; seventh Mr. Knowles with Madame St. Arnaud; eighth Mr. Fearnley with Lady Crewe. Fld. Byb.: First Mr. Barlow with Adonis; second Mr. D. Woolley with Lord Denman; third Rev. F. D. Horner with Talisman; fourth Mr. W. Kitchen with Adonis; fifth Mr. Thurston with Duchess of Sutherland; sixth Mr. D. Woolley with Chancellor; seventh Mr. Thos. Wood, unknown; eighth Mr. Jos. Boydell with Westpoint.

The premier feathered Tulip was George Hayward, biz., shown by Mr. S. Barlow; the premier flamed flower, Orion, biz., shown by the Rev. F. D. Horner.

A large number of breeder Tulips were shown, and their striking self-colour contrasted markedly with the variegated blooms of the other sections. The Rev. F. D. Horner had the best six blooms, having of bizaries Dr. Hardy and Sir J. Paxton; roses, Thomas Parker and Miss Burdett Coutts; byblæmens, Glory of Stakehill and Alice Grey. Second Mr. John Wood with biz. Excelsior and Sir J. Paxton; rose, Industry and Mabel; byb. Surpasse Grande and Alice Grey. Third Mr. S. Barlow with Horatio and seedling 29/63; roses, Miss B. Coutts and Mrs. Barlow; and byb. Talisman and Glory of Stakehill. Fourth Mr. Kitchen; fifth Mr. J. Thurston; sixth Mr. D. Woolley. There were thirteen stands of three breeders, Mr. S. Barlow being first with biz. Horatio, rose Anne McGregor, and byb. Glory of Stakehill. Second Mr. J. Thurston with biz. Horatio; rose Anne McGregor; and byb. unknown. Third the Rev. F. D. Horner with biz. Sir J. Paxton; rose Thomas Parker; and byb. Alice Grey. Fourth Mr. A. Fearnley; fifth Mr. R. Wolfenden; sixth Mr. J. Boydell. The best bizarre breeder was Sir J. Paxton, shown by Mr. S. Barlow. Mr. Kitchen was second with the same; Mr. Thurston third with a seedling; Mr. Thomas Wood fourth with Sulphur; Mr. Kitchen fifth with Ariosto; Mr. Wood sixth with Strong's King; Mr. S. Barlow seventh with seedling 29/63, and Mr. Thurston eighth with Excelsior. Mr. Thurston had the best rose breeder in a seedling; Mr. Wolfenden was second with a flower unknown; Rev. F. D. Horner third with Hepworth seedling, fourth with Lady C. Grosvenor, and fifth with Miss Burdett Coutts. Mr. W. Prescott was sixth with Mrs. Barlow, Mr. H. Housley seventh with Mabel, and Mr. Thurston eighth with Annie McGregor. The best byb. breeder was Beauty of Whitechurch, from the Rev. F. D. Horner, and he was second with Glory of Stakehill, fourth with Talisman, and fifth with Miss Hardy. Mr. Barlow was third with Glory of Stakehill, and sixth with a seedling; Mr. Kitchen seventh with one unknown, and Mr. Thurston eighth with a seedling.

The premier breeder Tulip was Sir J. Paxton, shown by Mr. S. Barlow. A first-class certificate of merit was awarded to Mr. W. Dymock for feathered bizarre Lord Randolph from Adonis × Maid of Orleans; a fine and striking variety which broke from a very ugly breeder.

### MARÉCHAL NIEL ROSE.

THROUGHOUT April and May there is no Rose which can be grown in a greenhouse, or anywhere else, to equal this. Its richly coloured de-

lightfully fragrant blooms command the admiration of those who are accustomed to see perfectly grown Roses. It is by no means, however, an easy matter to grow it successfully, and I have had many failures with it. Eight or nine years ago I planted one near the back wall of a lean-to Peach house. It was trained between the ground and the trellis to which the Peach trees are tied, a space 4 feet in width and 40 feet in length. In two years after planting it had filled the whole of this space, and the next spring it produced over 500 good blooms. Our satisfaction was complete, but it did not last long, as the plant immediately began to assume an unhealthy appearance, and in less than six months it was dead. Lack of attention was not the cause of this, and to this day I cannot account for its death. Others, I might almost say dozens, have been planted in the position this one occupied, but not one of them has proved what I should term a success. They grow a little, begin to look poorly, and then die; but I think I am pretty sure of the cause. Most of the plants have been budded on the Briar or Manetti, and it is at this union the evil arises. There is generally a swelling or lump there; the bark over this cracks and cankers, and the further progress of the plant ceases. This I feel sure is the cause of 90 per cent. of the deaths of Maréchal Niels, and I have made up my mind finally that I will never plant another excepting those growing on their own roots. We have several plants of the latter that are all we could desire them to be. They have grown very freely for several years, and seem likely to continue to do so. During the last month they have thrown up some young sucker-like growths from the root, which are now 5 feet in height; and as these will soon scramble over the roof and become hard and matured by the autumn they will bloom freely next spring.

Apart from having it on its own roots there is another secret in growing this Rose, and should be observed by all. It only consists in giving the roots a deep cool soil. The plant we have just mentioned as having made growth 5 feet in length lately is in a cool bed of soil 3 feet in depth. Everyone cannot bud Roses, but all may propagate them by means of cuttings, and I would advise those who wish to possess Maréchal Niels of the right sort to put in a few cuttings at any time during the year, more especially during the spring and autumn.—J. MUIR, *Margam*.

### VANDA CRISTATA.

AT the Orchid Conference, South Kensington, last year, Mr. J. Roberts exhibited a group of varieties from the Gunnersbury collection, and one of the plants which attracted most attention was the curious *Vanda cristata* shown in fig. 87 which was sketched from Mr. Roberts' specimen. Though it was described by its discoverer, Dr. Wallich, as an extremely beautiful species or in similarly eulogistic language, it scarcely merits so much unqualified praise when we have so many other handsome species to compare it with. It deserves notice, however, for its distinctness, and the flowers both in form and colouring are rather pretty. In habit it has been compared to *Vanda roxburghii*, and like other *Vandas* it has the leaves strangely notched at the points. The flowers are borne two or three together. The sepals and petals narrow, green; the lip striped with bright yellow and red, divided at the apex with the side lobes diverging.

The plant was found in Nepal growing upon trees, but it succeeds well in pots under cultivation, and requires the temperature of the warmest house.

### CULTIVATED VIOLETS.

(Continued from page 447.)

**MULCHING.**—In order to lessen radiation and evaporation a mulch of manure should be given between the rows and plants, bringing it close up to the neck or collar, but not so as to bury the centre. A covering an inch thick over the ground will be necessary, and it ought to be applied from the middle of June to the early part of July. Sometimes the weather is so dry and hot that it is advisable to mulch earlier, so that the cultivator will need to exercise his judgment, and be ruled to a certain extent by the weather and the condition of the plants. It is of primary importance that they be kept in progressive growth, and free from red spider. The mulching is best applied after rain, or if given in a dry time water well after the mulching in preference to putting it on after watering. The remains of an old Mushroom bed, leaf soil, &c., are good substitutes for manure. Cocoanut-fibre refuse and the short grass resulting from lawn-mowing are available for mulching. It may be repeated at intervals through the summer, but it is not desirable to have the mulching thicker at any time than a couple of inches.

**Watering.**—The plants ought never to be allowed to become distressed by lack of moisture. Not only must water be given until they become established, but it must be given whenever the weather is dry; but after the plants are mulched it will not be needed so frequently. It is best given through a coarse-rose watering pot and over the foliage, and should be applied in the evening or on a cloudy day. A good soaking once a week in very hot dry weather, or at more distant intervals according to circumstances, is far better than sprinklings every evening.

**Feeding.**—A top-dressing of scot may be given in three weeks to a month after planting, and at the rate of half a peck per rod (30½ square yards), and should be lightly stirred in with a hoe if the weather be dry. Showery weather is, however, the best time to apply scot and other surface dressings. The advertised manures are good, but in applying these



and guano they must be kept from the foliage, and especially the centre of the plants. Two pounds per rod of any of these is a sufficient dressing, and should be given as a first dressing in May, and may be repeated if mulching is not practised during the first moist weather in July.

Liquid manure may be applied advantageously through the summer. It should be poured between the rows, and if the ends of the rows are dammed up so as to be level with the ridges its passage into the soil will be insured with regularity. A good soaking should always be given and weak. It is difficult to state at what strength to apply the liquid from cesspools and tanks, but it is always better to apply it too weak than too strong. Ordinarily tanks that contain the drainings of stables, cow byres, and dung yards should be diluted with six times the bulk of water, or stronger material with twelve times the bulk of water, the liquid in all cases being well stirred and mixed. It is best given in a dull time that precedes rain after a period of bright weather or when, as the saying is, "It hangs for rain." A peck of soot and a peck of fresh cowdung put in separate bags in a tub, and 70 gallons of water added, poking the bags about two or three times a day for a week, will afford an excellent liquid manure. Feeding in liquid form will not be necessary in ordinary seasons after the middle of September.

*Removing Runners.*—The runners as they appear must be removed, and it should be done with a knife and with care so as not to break or damage the foliage, nor to loosen the plant's hold of the soil by dragging. The removal of the runners should be continued throughout the season. By this procedure the plants will form large well developed

in the least by keeping them in the dark frozen for weeks or months together. Protection may also be afforded by mats kept from the plants by stakes bent over them, and with the ends thrust in the ground so as to form hoops, and straw mats may be employed for a similar purpose. Evergreen branches, especially Spruce, are a good protection against frost. These materials should be used only when frosts prevail.

Before frost sets in clean the plantations, removing any decayed leaves, weeds, &c., and if the soil is very close point the surface over lightly and mulch shortly afterwards with an inch thickness of partially decayed litter, the rough being shaken out, or the remains of an old Mushroom bed. This will keep in the earth heat to some extent, and prevent the autumnal rains from washing the soil on to the flowers. Perhaps the best mulching of any for the winter season is straw somewhat coarsely chopped, and on heavy soils coarse ashes are serviceable, both being inimical to slugs through their sharp angles. It must be borne in mind that some Violets are tender, and liable to suffer in times of severe frost, especially when it prevails whilst the earth is bare. The Neapolitan in all its forms is not hardy, and it only becomes tenderer by high culture, so that if the ground is not covered with snow protection must be given. Straw hurdles or straw itself must be placed over the plants and remain during the severe weather. In early spring the Violets will push their flowers with genial weather, and whilst it is mild all will be well; but if a period of sharp weather, being what is popularly termed a black frost, succeed a spell of mild weather, we must be prepared to protect, or a few hours' frost, to say nothing of its being continued for days, may destroy



Fig. 87.—VANDA CRISTATA.

crowns, and the flowers will be fine or poor according to the treatment or growth of the preceding summer.

*Autumn and Winter Treatment.*—If varieties are grown that flower in autumn and through the winter in mild weather protection must be given. Frames are unquestionably the best, and of these span-roof are to be given preference. The frames should have low sides of wood not more than 10 inches to 12 inches in depth for the large growers, and 6 inches to 8 inches is sufficiently deep for the smaller growing sorts. A foot rise for the roof-lights of 9 inches from the sides to the centre is ample. All the lights must be hinged at the top, and so that they can not only be raised at the bottom for ventilation but turned over on to the other side of the frame, and the plants so exposed fully in mild weather and to allow of a thorough watering by rain or artificially if necessary, as well as to facilitate gathering the flowers. The frames should not be put on until frost, and from the day they are put on until they are taken off air must be given by tilting or raising the lights on both sides whenever the external temperature exceeds 35°, and when the temperature outside is 45° to 50° the lights should be turned over on opposite sides alternately. When the temperature is at those figures, and the atmosphere moist, or rain falls, the lights should be tilted or raised about 6 inches and on both sides. In severe weather give protection over the lights. Frigidomo, mats, straw mats, &c., are suitable. The protection should be removed daily when the nights only are frosty, but if the plants gettiog frozen through the night the protection must not be removed until they are thawed. In very severe weather the protection should remain on constantly after the plants are frozen until the general thaw, and if snow fall it should not be removed from the covering. The plants will not suffer

all the work of the previous season. To prevent such a calamity protection must be at hand. Nothing is better, failing frames, than Spruce branches stuck in the ground between the rows on the side from which the storm comes, and leaning from that side over the plants. It will mitigate the severity of the frost at night and of the parboiling effect of the sun by day. Protection of this character should always be held in readiness where Violets are cultivated, and when necessary be promptly and effectively applied.

The weather proving dry in spring, a good watering or waterings should be given between the rows, and always in the morning at this time of year, so as to allow the surface becoming fairly dry before night. Nothing short of high culture will grow high-class Violets, therefore supply liquid manure in spring if the plants show signs of exhaustion or enfeeblement in the blooms.

*Duration of the Plants.*—In order to obtain the fullest crop of the finest flowers, Violets must be treated as annuals; runners or suckers of the previous year's growth being planted in spring (or for special purposes rooted runners of the current year's growth may be planted in late summer and autumn, for which instructions will be given under the head of "Growing for Market"), and that time twelvemonth destroyed, or directly after flowering, and the securing of plants for new plantations. The plants will continue for many years, but they are never equal in freedom and size of flowers to the first season. If kept a second year, give a good dressing of manure after removing the large straggling foliage, and point it in. Keep free of weeds, mulch, water, and feed as in the first year, removing all runners, and the result will be a quantity of flowers, less in size, shorter in footstalk, yet of acceptable quality.



## SELECTIONS OF VIOLETS FOR OUTDOOR CULTURE.

I. Large growers for planting in rows 18 inches apart and 15 inches asunder in the rows. All have single flowers.

*Victoria Regina*.—Purple; the finest autumn, winter, and spring bloomer.

*Odoratissima*.—Blush violet, spring bloomer; the most floriferous, best shaped, and in every respect finest of its season.

*White Czar*.—White; the best of the single white Violets. Autumn, winter, and spring flowering.

II. Medium growers for planting in rows 15 inches apart, and 12 inches in the rows.

Single-flowered varieties:—

*Argenteo-flora*.—White tinted rosy purple; spring.

*Devoniensis*.—Purple; autumn and spring.

*Laviana*.—Lavender, white eye; spring.

Double-flowered varieties:—

*Rubra plena*.—Pink; spring.

*Queen of Violets* (Belle de Chatenay).—White, tinged purple; spring.

*Queen of Violets var. cœrulea*.—Light purple; spring.

III. Dwarf and close growers for planting in rows 12 inches apart and 9 inches asunder in the rows.

Single-flowered varieties:—

*Russian* (Scotch, London, floribunda, &c.).—Blue; spring.

*White Russian* (albiflora).—Spring.

*Rubra*.—Pink; spring.

Double varieties:—

*Double Scotch*.—Bluish purple; spring.

*Double White* (compacta).—Spring.

*Russian*.—Deep purple; spring.

*White Russian*.—Spring.

*Parmensis plena*.—Semi-double, white striped rose; spring.

*King of Violets*.—Indigo blue; spring.

*Patrie*.—Purple violet, slightly streaked red; autumn, winter, and spring.

The preceding are perfectly hardy; but the following are tender, yet when they survive the winter, as they do with protection as indicated before, they afford a quantity of flowers in spring, and some useful ones in autumn. Covered with frames they are best seen to advantage, flowered from September to April.

IV. Plant 15 inches asunder from row to row, and 12 inches apart in the rows.

*New York* (odorata pendula, Venice, Marguerite de Savoie, Count Brazza's Neapolitan, Marie Louise of some).—Deep mauve, streaked red, white eye.

*De Parme*.—Deep lavender, white eye.

*White Neapolitan* (Swanley White, Count Brazza's White Neapolitan).—Pure white, sometimes semi-double only.

## VIOLET FLORIBUNDA.

I AM obliged by Mr. Boothby's correction. Reference was not made to his variety, but the many synonyms of Russian, floribunda as generally grown being only a development of Russian by cultivation. Giant was also omitted, as it was only a magnified Russian, but I did not consider it could be put down as a synonym, being apparently a seedling development of Russian.

I omitted floribunda (Boothby) for the same reason as Prince Consort and Princess of Prussia, both Mr. G. Lee's raising—viz., because they were not, as far as I am aware, in commerce, and it is tantalising to readers to name varieties that cannot be had. Prince Consort and Princess of Prussia are the finest single Violets I have seen, and I hope to refer to them later on. Floribunda (Boothby), if I remember rightly, is very closely allied to Devoniensis, which probably originated from Giant, and Mr. Boothby has placed it beyond question that floribunda originated from Giant. This is very interesting and valuable information, as it shows Violets improve by cultivation, and seedlings of the highest cultivated forms are decided improvements on the parents, and goes to prove that much of the credit taken by hybridists is more due to cultivation and selection than anything else. I cannot determine the origin of Devoniensis. It is the first purple Violet with large blooms that flowers in autumn. If I remember rightly, Mr. Lee does not know its origin, and I only surmise it came from Giant, albeit the foliage is more after Wilsoni. This is a most curious flower—very narrow petals, white eye, and very sweetly scented. Devoniensis is very sweetly scented, and the foliage is more glaucous and pointed than in Giant, which certainly is the parent of Czar, and then we get White Czar, which has even more pointed foliage than Devoniensis and paler in colour, with a tendency to sparseness of reproduction; but this does not hold with White Czar, which is a great seeder. Czar has cordate foliage, so has Prince Consort. Victoria Regina, Odoratissima, and Princess of Prussia have pointed foliage, and much less hairy than either Czar or Prince Consort, so that we have two types, originating, as I think, from Russian or suavis, and I think the still less hairy, more glaucous, and more pointed foliage of Neapolitan to have originated from the same stock, being an albino form of suavis, the foliage bronzing under powerful sun. Single Neapolitan, if not white, is a pale lavender, white eye—due, I think, to the long cultivation of the Russian Violet in Italy and Greece, for the Violet is of great antiquity, being used as tiaras by belles at the Olympian games. Patrie I think pure Grecian, the oldest double Violet extant; anywise, I have had it from the Levant, and it is certainly of the Crimean type.

Having omitted Mr. Boothby's floribunda has caused its origin to be known. It is not the same as Russian, but intermediate between Giant

and Victoria Regina, about on a par as regards size of foliage and flowers with Devoniensis. I am glad to know it is an autumn bloomer, which I had not observed to be in advance in that respect of Devoniensis. If I remember rightly the flowers are bluish purple, fading to rosy purple, similar to Russian Superb.—VIOLEA.

## BATH AND WEST OF ENGLAND SOCIETY.

## HORTICULTURAL SECTION.—BRISTOL, JUNE, 2ND TO THE 7TH.

THIS always partakes more of the character of a loan Exhibition, the whole of the plants with the exception of a few Orchids being selected by the Steward of the section, the Hon. and Rev. J. T. Boscawen, from the collection of plants growing in the conservatories and houses of various gentlemen living principally in the neighbourhood of the Show. Further, the plants are grouped entirely under the supervision of Mr. Boscawen, and the consequence is, instead of the formal arrangements necessarily the rule at all flower shows, we have here a free artistic arrangement on the lines of a particularly well furnished conservatory. A fine lofty tent with closed wooden ends painted a sombre black and not pleasing to all observers, who would have preferred ordinary canvas or canvas-draped ends, was devoted to the plants, and the two grand groups were very effective, creditable alike to growers, lenders, and the Steward. We cannot, however, speak very highly of the side benches, these not being so well filled as might have been expected.

The principal exhibitors of plants were F. Tagart, Esq., Old Sneed Park, Bristol (Mr. C. Miller, gardener), who had in different parts of the tent immense specimens of *Latania borbonica*, *Cycas revoluta*, *Arecas*, and other Palms, Crotons, a grandly flowered *Gardenia* and other plants. Very fine and imposing as arranged with flowering plants were the grand specimens of *Crotons interruptus*, *irregulare*, *Weismanni*, and *Challenger*, *Areca sapida*, *Latania borbonica*, *Cycas revoluta*, *Latania rubra*, *Cordylines*, and *Dracænas*. *Clerodendrons*, *Stephanotis*, and other plants lent by J. Derham, Esq., Sneyd Park, Bristol (Mr. W. Rye, gardener). Another important contribution was that by A. W. Summers, Esq. (Mr. A. Hancock, gardener), this including huge healthy specimens of *Latania borbonica* and *Cycas revoluta*, and good plants of *Areca lutescens*, *Cocos Weddelliana*, some capitally flowered trained plants of *Stephanotis floribunda* and other flowering plants and Ferns. Among the various plants sent by W. Pethick, Esq., Woodside, Stoke Bishop (Mr. E. S. Cole, gardener), the most noteworthy were a fine bank of *Gloxinias* interspersed with Maidenhair Ferns, several Orchids, as well as various flowering and fine-foliaged plants. W. E. George, Esq., Downside, Bristol (Mr. H. Young, gardener), also contributed numerous well-grown plants, including good examples of *Adiantum farleyense* and other Ferns, *Cordylines*, *Dracænas*, Palms, &c. In addition to several large and good Ferns the contribution from H. St. Vincent-Ames, Esq., Cote House, Westbury-on-Trym (Mr. W. Bannister, gardener), included several very fine well-flowered *Marguerites*, and which are still surprisingly popular. H. Mardon, Esq. (gardener, J. Stapleton) also sent a considerable number of flowering and fine-foliaged plants all in a healthy condition, and we believe there were a few other contributors whose names we were unable to procure. The principal contribution by Mrs. Miller, Brentry House, Westbury-on-Trym (gardener, F. Nicholl), were four well-fruited pot Vines. The varieties were Black Hamburg and Foster's Seedling, and as trained over arches at the end of the tent in connection with other fruit trees which we have yet to notice, the effect was very pleasing.

Prizes were offered for a bank of Orchids and also for a single specimen, but these failed to attract more than one competitor—viz., H. Cruger Mills, Esq., Penpole, Shirehampton (gardener, Mr. F. Perry), who was awarded the first prize of £10 for an attractive group, which comprised *Lælia purpurata*, *Cattleya Mendeli*, *Odontoglossum Pearcei*, *Aerides*, *Cypripediums*, and other kinds in good condition. E. Saunderson, Esq., Clifton (Mr. Phillips, gardener), also contributed a small bank of choice Orchids, but not for competition.

Of the trade growers represented the principal exhibitors were the Messrs. R. Smith & Co., Worcester, this well-known firm greatly beautifying the tent with Clematises, Rhododendrons, and other hardy flowering shrubs. The large trained plants of the former interspersed among the various fine-foliaged and flowering plants above noticed were singularly attractive, and many were the inquiries concerning the small well-flowered plants grouped in baskets. Some of the best of the Clematises were Anderson Henry, Fairy Queen, Gloire de St. Julien, Lady Caroline Nevill, Marie Lefebvre, Princess of Wales, Sensation, these belonging to the lauginosa section; Barillet Deschamps, Countess of Lovelace, Enchastriss, and Venus Victrix, Florida section; and Miss Bateman a representative of the patens section. Some of the best of the Rhododendrons were Purity, Lady Rolle, Lady C. Neville, Mrs. J. Clifton, Everestianum, Mrs. T. Sebright, Duchess of Sutherland, Pouissin, Old Port, and Mrs. Fitzgerald. Mr. Charles Turner, Slough, sent a fine group of specimen Pelargoniums, all fresh and well flowered; and of these the best were Decorator, Rosetta, Digby Grand, Duchesse de Morny, Madame C. Koling (charming, pure white), Mrs. Ashby, Maid of Honour, Countess de Choisseuil, Gold Mine, Miss Ashby, Triomphe de St. Mandé, Empress of Russia, Mons. Desmoulin, Lady of the Lake, Garibaldi, Rosy Morn, Duchess of Bedford, and Prince of Wales, altogether a good selection. From Messrs. J. Laing & Co., Stanstead Park Nurseries, London, came a fine assortment of plants and cut blooms of Tuberous-rooted Begonias, a speciality for which this firm has deservedly become noted. Of the single varieties the following may be said to be a good and well varied selection:—Rose Perfection, Guardsman, Sunrise, Count of Roslyn, Mrs. Welles, Princess of Wales, Lady Falmouth, Sir P. Lumsden, Prince of Wales (very fine), Primrose Queen, Blushing Bride, Charming, and New Colour. The doubles were not so well developed, but Alba plena, Marquis of Bristol, Earl of Beaconsfield, Le Grande Citoyen, Marchioness of Stafford, and Prince Albert Victor were noteworthy. Messrs. Pearson, Chilwell Nurseries, Nottingham, exhibited three large stands of cut blooms of Zonal Pelargoniums, and these again were much admired. This class of plants have long been a speciality at Chilwell, the late Mr. Pearson having raised numerous very fine sorts, and his son still continues the improvement so worthily commenced. In addition to



several very superior unnamed seedlings they had such of their varieties as best represented each shade of colour. Of these the most noteworthy were *Aspasia*, Mrs. Gordou, Mrs. H. T. Barker, Norah, Mrs. Miller, Lady Chesterfield, Nelly Thomas, Viola, M. Myriel, and Mrs. Holford, all remarkable alike for the size and form of truss and individual pips. Mr. F. Hooper, Bath, had a long array of stands of Pansies, each section being strongly represented. Near these Mr. Turner had a stand of Carnations, which, owing to their great size, good form, and bright colours, surprised nearly all that saw them, such blooms not often being seen in the West of England.

At the end of tent opposite the entrance Messrs. J. Cheal & Sons, Crawley, Sussex, had a very interesting and instructive exhibit of cordon-trained fruit trees. Some were trained over an archway intended to span a garden work, others were trained diamond-shape to a wire fencing, and besides these there were single, horizontal, vertical, and obliquely trained trees, principally of Apples and Pears, and all well set with fruit. Mr. Cheal also on the second day of the Show gave a lecture on the subject of cordon-trained fruit trees, and doubtless convinced many of his hearers that the system has much to commend it. Those especially who desire a quick return for their outlay, or who only require a limited quantity of extra fine fruit, should give this system a good trial. Messrs. Cheal also had a well-kept collection of Apples, of which the best were Herefordshire Pearmain, Marfitt's Seedling, Dutch Mignonne, Hornead's Pearmain, Scarlet Nonpareil, Welford Park Nonesuch, Claygate Pearmain, Norfolk Beefing, French Crab, Annie Elizabeth, and Bess Pool. Near these was a very handsome dish of Tomato Hathaway's Excelsior, contributed by Mr. W. Bannister, and also the dishes of Strawberries, six in all, staged in competition for the valuable prizes offered for them. The first prize was awarded to J. Lysaght, Esq. (F. Edwards, gardener), for a handsome dish of Alice Maud, but which more resembled James Veitch. Mr. E. Miller was second with a good dish of President, and Mr. E. S. Cole third with La Grosse Sucrée of good size and colour.

**HORTICULTURAL STRUCTURES.**—Several well-known firms had extensive exhibits, conspicuous among these being the serviceable, strongly built, yet elegant conservatories, fruit houses, and frames, erected by Messrs. Foster and Pearson, Beeston, Notts. Their system of ventilating the improved frames and movable span-roofed forcing pits is especially to be commended, and the amateurs' greenhouse or conservatory is among the best of its kind. They also had several boilers on view, as well as fittings for houses, valves and joints for pipes, all denoted superior workmanship. Messrs. Deane and Co., of King William Street, London Bridge, had good examples of small conservatories, amateurs' greenhouses, forcing houses, and frames of a character to meet the requirements of all classes of horticulturists, and they also had boilers and other appliances necessary to gardeners. Messrs. Richardson & Co., horticultural builders, Darlington, exhibited several useful structures well adapted for all who may need houses, whether for plant or fruit growing, some being ventilated on their patent system, and others with the ordinary systems. Their wall copings, Peach cases, detached span-roofed forcing or plant houses, were all good examples of modern styles, and the Parisian greenhouse blinds came in for a good share of attention. These appear to be of a very durable character, but afford rather too much shade for many subjects.

Another noteworthy series of exhibits were the "patent Venetian" flower and fruit houses erected by Messrs. Skinner & Board, Stoke Croft, Bristol. These are specially to be commended for fruit houses, as they are so constructed as to admit of the several laps composing the roof covering to be easily opened at any angle, thereby admitting little or much air all over the roof, or they can be so adjusted as to allow the whole of the rainfall to reach the trees and borders—an obvious advantage. This firm also had examples of revolving wall copings, of tubular boilers, and other appliances. Messrs. Wright & Holmes, Mosely Road, Birmingham, also had several useful houses, some being designed specially for amateurs, all being well constructed and ventilated on good principles. Mr. W. Parham, Northgate Works, Bath, had a conspicuous exhibit, their houses of all descriptions, as well as wall coping, Peach cases, and frames being glazed on Cranston's patent system of glazing, of which he is now the sole proprietor. Mr. Wood, Eastville, Bristol, has his gold medal boilers working satisfactorily; he also exhibited his patent kitchen range boiler, tenants' greenhouses, and other articles.

Mowing machines and various implements connected with horticulture were largely exhibited in different parts of the grounds, but we must conclude this notice with a few merited remarks upon the extensive exhibit of pottery by Mr. John Matthews, The Royal Pottery, Weston-super-Mare. This included a wonderful variety of ornamental vases, large and small, fountains, statuary, and every kind of pot, pan, saucer, hanging baskets, brackets, tiles, &c., that are now in demand by horticulturists and others. Many of them are elegant in design, all are well made, and calculated to be most durable and serviceable. Near these were arranged in a somewhat similar style and furnished with plants as in Mr. Matthews's case, were a number of vases, pots, &c., made and sold by Mr. C. Warne, Weston-super-Mare, and these also appeared to be well made. We had nearly omitted mention of the tree guards shown round strong park trees furnished by Messrs. Garaway & Co., Durham Downs Nursery, Clifton, these being portable, lightly constructed, therefore cheap, yet give promise of being very durable and well adapted for the purpose for which they are made. They are called "Cole's Patent Invincible" and are the invention of Mr. G. S. Cole, The Dean, Gloucester. Messrs. Garaway also furnished a considerable number of plants for the decoration of some of the structures in which various processes were illustrated at different times. The exhibits of the leading seedsmen and others are commented upon in another part of this Journal.

#### ODONTOGLOSSUM VEXILLARIUM.

HEREWITH I send you two racemes of *Odontoglossum vexillarium*, and I think you will admit they are very fine, especially the one with the lateral, which is unusual. One spike you will observe bears ten flowers and the other nine. We have at present a very fine display of this Orchid—about sixty plants in bloom in grand condition. These we have grown from small single imported pieces during the last four years, and we have

not a poor variety amongst them. I find they do best by being kept gently growing nearly all the year round, and I think you will see by the samples sent that such treatment suits them.—J. RIDOUT, *Gardener to T. B. Haywood, Esq., Woodhatch Lodge, Reigate.*

[Unquestionably the treatment has suited them. The flowers are very fine indeed, some of them exceeding  $4\frac{1}{2}$  inches in length and  $3\frac{1}{2}$  inches across the labellum; they are stout in texture, good in colour, and very handsome.]

#### ROYAL HORTICULTURAL SOCIETY.

JUNE 8TH.

THE Exhibition on this occasion was devoted to Orchids, and though only six classes were allotted to them, a pretty display was produced by the collections entered in competition. There were also extensive groups of *Pæonies*, *Irises*, and hardy flowers generally that furnished considerable attractions to the visitors.

**THE ORCHIDS.**—The competition was not quite so keen as might have been expected, being restricted to five exhibitors, but the specimens were well flowered, although some of the largest were notable examples of the "made-up type," three or four varieties being observable in one pot. In the nurserymen's class for twelve Orchids Mr. J. Cypher, Queen's Road, Cheltenham, was first with large specimens, and mostly flowering profusely. The best of those represented were *Lælia purpurata*, with four spikes or twenty flowers; *Cattleya Mendeli grandiflora*, a fine variety with three large flowers; *Odontoglossum vexillarium*, seventeen flowers; *Anguloa Clowesi*, a magnificent specimen, thirteen fine flowers; *Vanda suavis*, three racemes; *Cattleya Mossiae*, a huge mass 3 feet in diameter and crowded with flowers; *Epidendrum vitellinum*, of similar size, with over fifty racemes; *Cypripedium Lawrencianum*, handsome; *Dendrobium thyrsiflorum*, twenty-four racemes; *Cattleya Mendeli* and *C. Mossiae grandis*. The second prize was awarded to Mr. H. James, Castle Nursery, Lower Norwood, for a neat collection, of which the best plants were *Aerides Lobbi grandis*, a very fine variety, the flowers richly coloured; *Odontoglossum vexillarium*, *Masdevallia Harryana*, *Dendrobium Bensoniae*, and *Calanthe veratrifolia*, all beautifully flowered. In the amateurs' class for the same number of Orchids Mr. C. J. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, was awarded first honours, showing a very handsome collection of vigorous plants. An extremely pretty variety of *Odontoglossum vexillarium* named *picturatum*, with white lips and rosy sepals and petals, had eight fine racemes; *Dendrobium suavisimum*, twelve racemes of its golden flowers; *Cattleya Warneri* was attractive, *C. gigas* had eleven large richly coloured flowers, *Aerides Fieldingi* was very beautiful with four panicles of flowers, *Cattleya Wagneri* was very noticeable, pure white with the lip golden in the throat; *Oncidium macranthum* was represented by a fine variety; *Odontoglossum vexillarium*, *Anguloa Ruckeri*, and *Cypripedium Lawrencianum*, with twenty-four flowers, were also notable specimens. Mr. F. J. Hill, gardener to H. Little, Esq., The Barrons, Twickenham, secured the second place, one of his best plants being *Cattleya intricata*, a supposed hybrid between *Cattleya amethystina* and *Lælia elegans*. *C. Mendeli*, *C. Mossiae*, *Odontoglossum Pescatorei*, and *Cypripedium niveum*, were also well shown.

Classes for six Orchids were also provided for amateurs and nurserymen; amongst the former Mr. Cooke, gardener to De B. Crawshay, Esq., Rosefield, Sevenoaks, took the lead with plants of medium size, but fresh and healthy, of *Vanda suavis*, *Cattleya Warneri*, *Epidendrum vitellinum majus*, *Odontoglossum vexillarium*, and *Cattleya Mendeli*. Mr. C. J. Salter followed closely, *Maxillaria Turneri* being well flowered; also several *Cattleyas*. Messrs. Cypher and James were respectively first and second in the nurserymen's class for six, both showing good plants, but the former had the largest and most freely flowered specimens.

The only group of *Odontoglossums* was from Mr. H. James, who was awarded the first prize for an extremely pretty collection of plants arranged with Ferns. Numerous varieties of *crispum* were shown with *polyxanthum*, *Pescatorei*, *septrum*, *Andersonianum*, *citrosum*, *vexillarium roseum*, *Wilkeanum*, *cordatum Kirnastianum*, a very dark coloured variety; *Lehmauni*, a pretty variety, white-edged with rose; *cordatum aureum* and *niveum majus*. The competition was closer with six *Cattleyas* or *Lælias*, four exhibitors entering. Mr. J. Cypher was again first, his plants comprising *Lælia purpurata alba*, with nine flowers; *L. purpurata Brysiana*, with twenty-one flowers; *Cattleya Mossiae grandis*, *C. Mendeli grandiflora*, *C. Mossiae*, and *C. lobata*, with five good flowers, the lip handsomely veined with deep crimson. Mr. Cooke followed, his best plants being *Lælia purpurata* and the light variety *Russelliana*. Mr. H. James was third, his best specimen being a very fine variety of *C. gigas*.

**Miscellaneous Groups.**—Silver-gilt medals were awarded to the three following exhibitors for collections of cut flowers. Messrs. Kelway & Son, Langport, Somerset, had a great number of *Pæonies*, *Pyrethrums*, single and double, extremely bright and varied, *Irises*, representing all the types now flowering, and miscellaneous hardy flowers. Mr. T. S. Ware, Hale Farm, Tottenham, contributed an imposing group of outdoor flowers, his collection of herbaceous and other *Pæonies* being exceedingly beautiful; *Irises*, the early dwarf *Papaver bracteatum præcox*, the yellow Day Lily, *Hemerocallis flava*, the white-lipped *Cypripedium occidentale*, and *Anthriscum liliastrum*, also formed interesting features. Messrs. Barr & Son, Covent Garden, had a similarly attractive group of *Pyrethrums*, *Irises*, and other flowers. Bronze medals were awarded to Messrs. W. Paul & Son, Waltham Cross, for a large collection of *Rhododendron* flowers, representing a great number of Choice varieties, together with baskets of "Scotch Roses," and the charming bright copper Austrian Rose, which attracted much attention owing to its bright colour; and to Messrs. Hugh Low & Co., Clapton, for groups of *Odontoglossum crispum* and *Cattleya Mossiae* varieties, comprising some very handsome forms of both species. Messrs. Hooper & Co., Covent Garden, had an interesting group of Ivy-leaved *Pelargoniums* and double *Pæonies*. Messrs. E. H. Krelage & Son, Haarlem, Holland, showed a collection of *Irises* varieties of *germanica*, *equilata*, *pallida*, *siberica*, and others, and groups of well-grown *Fuchsias*, and *Saxifraga nepalensis* were contributed from the Society's Gardens at Chiswick.



**FRUIT COMMITTEE.**—Present: T. Francis Rivers, Esq., in the chair, and Messrs. G. T. Miles, G. Norman, J. Burnett, John E. Lane, John Woodbridge, William Warren, William Denning, T. B. Haywood, and Harry J. Veitch.

Messrs. Thomas Rivers & Son, Sawbridgeworth, were awarded a cultural commendation for fruits of Early Favourite Plum, a small round dark variety of excellent flavour. A vote of thanks was also awarded for well-kept Dumelow's Seedling Apples. Mr. Lockie, Oakley Court Gardens, Windsor, showed a green-fleshed Melon named Oakley Court Seedling, a cross between Dr. Hogg and Egyptian Greenflesh. It was scarcely ripe, and the Committee desired to see it again. Mr. E. S. Wiles, Elgcote Park, Banbury, exhibited a Melon named Edgcote Beauty, a cross between Captain Larks and Golden Perfection, but it was passed.

The South Australian Commissioners showed some ripe and finely flavoured Winter Nelis Pears, Potatoes something like a rough Vicar of Laleham, Onions, and dried or preserved fruits, comprising Pears, Peaches, and Plums, for which votes of thanks were accorded. It was stated that the Potatoes were at the disposal of the Committee for distribution, subject to the results being made known to Sir Samuel Davenport, Commissioner for South Australia.

Mr. March, Board of Green Cloth, Buckingham Palace, exhibited some frames to illustrate his method of "water protection for plants." They were ordinary box frames with a flat glass top, but with wooden sides to form a kind of trough in which water was to be placed, that, when frozen, it is thought, would protect the plants below. It was referred to Chiswick for trial.

**FLORAL COMMITTEE.**—Present Mr. James O'Brien in the chair, and Messrs. Harry Turner, A. J. Lendy, H. M. Pollett, Amos Perry, G. Paul, Shirley Hibberd, H. Herbst, W. Wilks, W. H. Lowe, W. Bealby, H. Cannell, W. B. Kellock, E. Hill, William Holmes, and J. Dominy.

Mr. W. Stacey, Dunmow, had a stand of two dozen Verbena trusses, representing some of the handsome varieties that he has raised in recent years, and which are remarkable for their bright clear colours and size of flower and truss, being especially valuable for culture in pots where others of a sturdy character are adapted for bedding out. Very notable were Alba Magna, pure white; Acquisition, a distinct rosy salmon tint, extremely bright; Purity, white; Purple Queen, rich purple; Lord Charles Beresford, dark scarlet; Fairy Queen, striped; Cantab, large light purplish-blue; Lilacina, lilac; and Lady C. Beresford, scarlet which was certificated. F. G. Tautz, Esq., Goldhawk Road, Hammersmith, exhibited several fine semi-double Tree Pæonies, two of which were certificated. Mr. G. Burnett, The Grange, Hillingdon, showed two seedling varieties of Decorative Pælagoniums named Miss Dyson, rosy salmon and dark blotch, and Beauty of Hillingdon, pale rose. Both are very free, and a vote of thanks was accorded for them. C. Dorman, Esq., The Firs, Lawrie Park, Sydenham (gardener, Mr. W. White), had several choice Orchids, one of the most notable being *Maxillaria Sanderiana*, with large white flowers stained with claret at the base of the sepals and petals; *Odontoglossum crispum* Mrs. C. Dorman was a distinct variety, the sepals and petals margined with rosy crimson on a white ground; *Oncidium pulchellum*, a graceful species with light panicles of small blush white flowers; *Epidendrum vitellinum* maximum, very large and bright; *Cattleya Wagneri*, white with gold throat; *Odontoglossum Andersonianum*, variety Dormani, delicate buff, with brown spots; and *Cattleya Reineckiana*, with white sepals and petals, the lip veined with crimson (vote of thanks). Mr. Cypher had a pale rose-lipped *Lælia purpurata* named *pallida rosea* and some distinct varieties of *Cattleyas Mossiae* and *Mendeli*. G. Nevill Wyatt, Esq., Lake House, Cheltenham, showed a pale variety of *Cattleya Mossiae*, named *Wyattiana*. H. M. Pollett, Esq., Fernside, Bickley, showed *Cypripedium Godefroyæ argenteum*, a variety with silvery leaves. S. Courtauld, Esq., Bocking Place, Braintree (gardener Mr. A. Wright), was awarded a cultural commendation for a plant of *Masdevallia rosea* in a 48-size pot, with about 120 flowers, the best example of this floriferous species that we have seen. The New Plant and Bulb Company had two pretty varieties of *Cattleya Mossiae*. Walter Cobb, Esq., Silverdale, Sydenham, showed a fine pure white variety of *Odontoglossum crispum* (vote of thanks). Mr. J. King, Rowsham, had a new *Coleus* named *Vesavius*, with large leaves, very bright red, neatly edged with gold, an effective variety. Mr. R. Underwood, Fortune Green, Kilburn, showed a *Pelargonium*, sport with scarlet and blush flowers on the same plant (vote of thanks). Messrs. J. Laing & Co. sent a beautiful double Tuberous *Begonia* named *Triumph*, with very full blooms of a rich salmon hue. Messrs. H. Cannell & Sons, Swanley, had a small collection of choice new *Gloxinias*, one of which—*Ormonde*—was certificated. The best of the others were *Snowdrift*, white; *Viceroy*, crimson, white throat; and Mrs. Amherst-Morris, purple, dotted with crimson.

A series of water-colour sketches of Orchids, faithful and well executed representations of plants in Mr. A. H. Smee's collection, the work of A. Foord Hughes, Esq., Wandle Bank, Wallington, was exhibited and greatly admired by many visitors. *Oncidium Jonesianum*, *Vanda Sanderiana*, and *Odontoglossum crispum* were especially well depicted, *Zygopetalums*, *Cattleyas*, and other plants being carefully and correctly drawn. Messrs. Jones and Firmin, 120, Blackfriars Road, showed a mirror, upon the back of which a plant of *Odontoglossum crispum* with a fine raceme of flowers had been painted previous to the glass being silvered. It had a pleasing effect and was tastefully sketched. Mr. H. G. Smyth, Goldsmith Street, Drury Lane, exhibited a very good example of *Orchid* peat.

M. M. Vervaeke et Cie, Ghent, Belgium, showed a plant of *Odontoglossum Vuylstikianum*, which was something like a yellow *O. luteo-purpureum*, the sepals and petals undulated and the lip fringed.

#### CERTIFICATED PLANTS.

*Verbena Lady C. Beresford* (Stacey).—A bright rosy scarlet variety, with a white eye; very effective and handsome.

*Pæonia Moutan lilacina* (F. G. Tautz).—A large semi-double variety, white stained with purple at the base. *Purity*, similar in shape and style, but pure white.

*Cattleya speciosissima*, *Fairfax* variety (Admiral Fairfax, Ravenswood, Melrose, N.B.).—Very handsome, with broad crimson petals, narrow sepals of similar colour, and a large round dark crimson lip.

*Gloxinia Ormonde* (H. Cannell & Sons).—An exceedingly dark crimson variety of very rich colour.

*Pyrethrum roseum Ormonde* (Kelway & Son).—A double variety of a bright rose tint, close cut florets, very full.

*Pyrethrum roseum*, *Princess of Wales* (Kelway & Son).—A single variety, bright rose, very large, and of good form.

*Pyrethrum Mrs. Bateman Brown* (T. S. Ware).—Single, rich rose-crimson, very fine colour and excellent shape.

*Iris Victorine* (Kelway & Son).—A pretty variety of the germanica type, with dark blue falls and white standards veined with purple.

*Pæony Eclair* (Kelway & Son).—One of the herbaceous Pæonies, with pinkish white double flowers; very full and handsome.

*Pæony Festiva maxima* (T. S. Ware).—An herbaceous variety, with large double white blooms, slightly tinged with red, very fragrant.

**SCIENTIFIC COMMITTEE.**—A. Grote, Esq., in the chair.

*Red-spotted Potatoes.*—Dr. Masters observed with reference to Mr. Plowright's communication made to the last meeting, that although many were found in the experiments at Chiswick in 1884, none whatever occurred in 1885.

*Apples and Pears attacked by Erysiphe Communis.*—Mr. W. G. Smith stated that the trees at Dunstable were badly attacked this year by an "oidium." It had often been noticed before, but it had not previously been identified with *E. communis*. It attacks the stamens and pistil, destroying the pollen.

*Circeia Lutetiana* with *Stipules*.—Dr. Masters brought plants, and called attention to the fact, previously unobserved, that this species possessed minute gland-like stipules, which disappeared from the older and lower portion of the plants.

*Hawthorn Shoot from Root.*—He also exhibited a shoot of *Cratægus Pyracantha* springing from a root.

*Deutzia gracilis* with "blind flowers."—Dr. Lowe brought specimens showing that these produced no fruit, but often bore isolated flowers with perfect organs.

*Senecio spathulifolia*.—He also exhibited fine specimens of this plant growing in the open. It is a native of Holyhead, and said to be in Yorkshire by Backhouse. Mr. Boscawen observed that the Groundsels are all best raised from green seed, which come up quicker and better than when dried. It is the same with Lilies. Dr. Lowe also exhibited plants of *Aster aurantius*, originally received from the late Mr. Joad.

*Potato with Phycomyces nitens.*—A specimen was received from Mr. Wills with the silky-looking fungus, which appeared to be in fructification. It was referred to Mr. Smith for further examination and report.

*Ascomyces Alni.*—A specimen of Alder root covered with excrescences due to this fungus was sent by Mr. Bunyard of Maidstone.

*Anthericum Liliastrium* and *Delphinium*.—He also sent isolated blossoms of these plants springing from the base of the plants in anticipation of the usual spikes.

*Method of Lighting with the Interposition of Water.*—Mr. T. C. March (of the Board of Green Cloth, Buckingham Palace) was invited to give some account of his invention, which consists of introducing a shallow glass tank over the plants. This stops the heat rays but allows the light to penetrate freely. Mr. Stirling, the Queen's gardener, is experimenting with it, and finds *Fuchsias*, *Ferns*, &c., grow extremely well under it. It was suggested that it might be useful to adopt some form of the arrangement in tropical countries with advantage.

#### REVIEW OF BOOK.

*Flowers, Fruits, and Leaves.* By Sir JOHN LUBBOCK, Bart., F.R.S., M.P., D.C.L., LL.D. London: Macmillan and Co. 1886.

WE have already a number of works from Sir John Lubbock's prolific pen, several of which have taken a high place amongst popular scientific treatises, but to many persons the work now under notice will probably prove one of the most interesting. The author has repeatedly given good evidence of his acute and accurate observations in natural history, and it might be well imagined that bringing this attentive study to bear upon plant peculiarities, something original and instructive would result. With regard to one portion of the subject, however, that relating to the cross-fertilisation of flowers, so much has appeared in late years, that little room has been left for original investigation, but a comparison of the recorded observations is very useful, especially as the author has himself paid special attention to the matter, as related in his "Flowers and Insects," published some ten years since. Upon the structure of fruits and seeds treated popularly there has been less of an authoritative character, while the chapters on leaves, which conclude the work, contain much that will be new to many readers.

We may briefly note the features of these divisions. In chapter i., dealing with flowers, cross-fertilisation, specialisation of structure to encourage insect visits, and the observations on insectivorous plants are reviewed. Mr. C. Darwin's experiments also receive consideration, as well as those of other celebrated European naturalists. The structure of *Geranium pratense* is described and illustrated, also *Epilobium angustifolium* and *Vallisneria spiralis*, but a much fuller description of the latter, with an illustration, is given in chapter iii., page 51, though there is apparently a slight inconsistency in the two references. At page 10, it is said, after describing the female flowers, that "the male flowers are minute and sessile, but when mature they detach themselves from the plant, rise to the surface, and float about freely like little boats among the female flowers." On page 51, however, it is said that "the male flowers have short straight stalks, from which, when mature, the pollen detaches itself, rises to the surface, and floating freely on it, is wafted about so that it comes in contact with the female flowers." The italicised word indicates the seeming discrepancy.

Some space is devoted to the consideration of the author's favourite study, the partiality of bees for particular colours. He says, "In order



to test the power of bees to appreciate colour, I placed some honey on a slip of glass, and put the glass on coloured paper. For instance, I put some honey in this manner on a piece of blue paper, and when a bee had made several journeys, and thus become accustomed to the blue colour, I placed some more honey in the same manner on orange paper about a foot away. Then during one of the absences of the bee I transposed the two colours, leaving the honey itself in the same place as before. The bee returned as usual to the place where she had been accustomed to find the honey; but though it was still there, she did not alight, but paused for a moment, and then dashed straight away to the blue paper. No one who saw my bee at that moment could have had the slightest doubt of her power of distinguishing blue from orange."

The structure of several common flowers is explained, and the subject is continued on chapter ii., which also deals with "cleistogamous flowers," "dimorphism," "the purpose of honey," "the protection of plants," "the sleep of plants," "the scent of flowers," and concludes with the "origin of flowers," from which we extract the following remarks. "Nevertheless although flowers present us with these beautiful and complex contrivances, whereby the transfer of pollen from flower to flower is provided for, and waste is prevented, yet they appear to be imperfect, or at least not yet perfect in their adaptations. Many small insects obtain access to flowers and rob them of their contents. *Malva rotundifolia* can be, and often is, sucked by bees from the outside, in which case the flower derives no advantage from the visit of the insect. In *Medicago sativa*, also, insects



Fig. 88.—*Odontoglossum crispum* Cooksoni.

can suck the honey without effecting fertilisation, and the same flower continues to secrete honey after fertilisation has taken place, and when, apparently, it can no longer be of any use. Fritz Müller has observed that though *Posoqueria fragrans* is exclusively fertilised by night-flying insects, many of the flowers open in the day, and consequently remain sterile. It is of course possible that these cases may be explained away; nevertheless, as both insects and flowers are continually altering in their structure, and in their geographical distribution, we should naturally expect to find such instances. Water continually tends to find its own level; animals and plants as constantly tend to adapt themselves to their conditions. For it is obvious that any blossom which differed from the form and size best adapted to secure the due transference of the pollen would be less likely to be fertilised than others; while on the other hand, those richest in honey, sweetest, and most conspicuous, would most surely attract the attention and secure the visits of insects; and thus, just as our gardeners, by selecting seed from the most beautiful varieties, have done so much to adorn our gardens, so have insects, by fertilising the largest and most brilliant flowers, contributed unconsciously, but not less effectually, to the beauty of our woods and fields."

Two chapters of fifty-two pages are devoted to fruits and seeds, respecting which much varied information is given. The forms of fruits and seeds are considered, and the various methods by which the latter are distributed. Referring to the protection of seeds, it is observed that this is "in many cases attained by curious movement of the plant itself," and the Sensitive Plant, *Averrhoa Bilimbi* and *Desmodium gyrans* are described. As in all these cases the movements are those of the leaves, it might be thought that their consideration would have been better in the

chapter devoted to them, but that is of little moment. In describing the *Desmodium*, it is said that "the leaflets are perpetually moving round and round," an expression which will not convey a clear idea of their motion to a person unacquainted with the plant. The small leaflets are situated on each side, at the base of the central larger lobe, and they rise alternately by jerks until vertical, and then descend again.

In the chapters on leaves, the leading points discussed are the differences of forms and structure, particulars of extremely interesting experiments being incorporated. Numerous illustrations are given, and the work, which is neatly bound in cloth, will be valued by all who are interested in plant structure.

#### GARDENERS AND PREMIUMS.

ON page 439, "*Lathyrus*" is, to my thinking, far below the average in his estimate when he says "it is very questionable if the term apprentice applies to 5 per cent. of gardeners." If young beginners in gardens are not termed apprentices I should like to know what they are termed; but as far as my experience goes, I have generally heard them termed apprentices, even if no premium has been paid, and it is a certainty that no young gardener is termed a journeyman until he has served two or three years' apprenticeship; therefore I think "*Lathyrus*" might safely say, without exaggeration, 50 per cent. instead of 5. But I will admit that, as a rule, there is no legal tie made when a premium is paid in our profession; but there are exceptions to every rule, for I could point out to "*Lathyrus*" more cases than one where indentures were drawn up and signed by a lawyer when premiums were paid. Again, "*Lathyrus*" says, "It is not youths that are first entering gardens who pay premiums, but young men that have already served some years," but I have not found it the case. In the place stated at page 417 no premium was demanded from young men that were termed journeymen, but merely from beginners, or from youths that had served one or two years in a second-rate garden, and at the same time fairly good wages were paid to the apprentices according to their abilities. Therefore I cannot agree with your correspondent in saying that where premiums are received they are paid the lowest wages; but I have known places where no premium was required, but very low wages paid in lieu of premiums, so in the end it amounts to the same thing. Again "*Lathyrus*" seems anxious to know where I see "the resemblance between gardening and any other trade." I will admit that gardening is not generally termed a trade, therefore had I known that "*Lathyrus*" had been such a critic I would not have used the word, but at the same time there are other callings beside gardening that can scarcely be termed trades where beginners have to pay a premium or work for very low wages, and, in fact, in some cases, receive no wages for the first year.—AN OUTSIDE FOREMAN.

#### ODONTOGLOSSUM CRISPUM COOKSONI.

NUMEROUS handsome varieties of *Odontoglossum crispum* have been introduced, and there are now all gradations from the pure white spotless forms that are usually termed *O. Alexandræ*, to the heavily spotted varieties either on a white, a yellow, or a rosy ground. One of the finest of the spotted type is *O. crispum* Cooksoni, which is named in honour of a distinguished Orchid amateur, N. C. Cookson, Esq., Wylam-on-Tyne. It was introduced from New Grenada, and is remarkable alike for the size of the flowers and the richly coloured large spots. The sepals and petals are pure white, and upon this the dark reddish-brown blotches show up very boldly. Our figure represents a single flower the natural size, and a faithful coloured plate was given in "*Williams's Orchid Album*," vol. iii., t. 118. As in the case of all such varieties, this must continue scarce and valuable for a long time to come, but it forms a good example of the best of the spotted varieties in contrast with the White *O. crispum* which we have previously figured.

#### ROYAL BOTANIC SOCIETY.

JUNE 9TH.

THE second summer Show of this Society is always one of the leading horticultural events of the London season, and on this occasion it was no exception to the rule, for the entries were numerous, of excellent quality, and were arranged in Mr. Coomber's usual tasteful manner. The principal attractions were the Orchids, which formed magnificent hanks. The stove and greenhouse plants and the Pelargoniums were also notable, together with the miscellaneous groups from the nurserymen, which invariably constitute such an important portion of these exhibitions. Cut flowers were also numerous represented, but fruit was shown by few, owing to the season being very late with indoor productions as well as those from outdoors. Some of the exhibits were good, however, especially the Peaches and Nectarines.

ORCHIDS.—Some grand specimens were included in the classes devoted to these, one of the most remarkable being Mr. Douglas's *Odontoglossum vexillarium*, which had forty-seven racemes, or a total of 289 flowers. This was shown in the class for twelve specimens, and was much the finest plant exhibited. Five classes were provided, each for twelve Orchids, the first two for exotic species, or varieties from nurserymen and amateurs, the second two for single specimens divided in the same way, and the third for twelve European Orchids, in which there was no entry. The successful amateur exhibitors were Mr. J. Douglas, gardener to Francis Whitbourn, Esq., Great Gearies, Ilford, who was first both with the single specimen and



twelve other specimens. The second prize for single specimens was gained by Mr. S. Cooke, gardener to De B. Crawshaw, Esq., Rosefield, Sevenoaks; and the third by Mr. W. May, gardener to F. C. Jacob, Esq., Amburst Park, Stamford Hill. In the other amateurs' class Mr. J. Douglas was followed by Mr. C. J. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, and Mr. F. J. Hill, gardener to H. Little, Esq., The Barrons, Twickenham, who had similar plants to those at South Kensington on the previous day. The best twelve single specimens from nurserymen were shown by Mr. J. Cypher, and followed by Mr. H. James and Messrs. Jackson & Sons, Kingston. In the other class for twelve Orchids Mr. J. Cypher was first with very large and well-grown plants. Mr. H. James took the second place, and Messrs. Jackson & Sons were third. The majority of the nurserymen's Orchids were the same as those noted in our report of the South Kensington Show, except those from Messrs. Jackson & Sons, which comprised some good Cattleyas, Cypripediums, Dendrobiums, and Odontoglossums. Mr. J. Douglas also had a handsome example of Masdevallia Harryana with about sixty flowers, and Cypripedium caudatum roseum, very fine.

**STOVE AND GREENHOUSE PLANTS.**—An open class for twelve specimens was the leading one, and in this the prizetakers were Mr. J. Cypher, Cheltenham, whose specimens were in capital condition; Mr. J. Mould, Pewsey, second with neat plants, Statice profusa excellently flowered; and Mr. H. James third with large specimens. The Cheltenham plants comprised Pimelea Hendersoni 6 feet in diameter, Erica depressa of similar size, E. Cavendishiana beautifully flowered, Ixora Williamsi 6 feet across and grandly flowered, Erica tricolor rosea, and Anthurium Schertzerianum Cypheri with very large spathes.

An amateurs' class for six specimens was included, the exhibitors being Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, first, with handsome Azaleas, Ericas, and Pimelea decussata; second Mr. G. Wheeler, St. John's Lodge Gardens, Regent's Park, and third Mr. R. Butler, gardener to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, with small plants. There was also a class for six specimens from nurserymen, and in this the prizetakers were Mr. J. Cypher first with splendid examples of good culture; second Mr. J. F. Mould with small plants, Erica ventricosa coccinea minor being profusely flowered; third Mr. H. James.

**PELARGONIUMS.**—The bright flowers of these plants constitute an important addition to the summer Shows at Regent's Park, and formed two pretty hanks of plants. The amateurs' collection of show varieties were from Mr. D. Phillips, gardener to R. W. Mann, Esq., Langley Broom, Slough, and Mr. H. Little. The same exhibitors were first and second with fancy varieties, Mr. Phillips' plants being very handsomely flowered, Roi des Fantaisies, The Shah, and Delicatum especially so. Mr. C. Turner and Mr. J. Cypher were the prizetakers in that order for show varieties, and Mr. C. Turner won also first with fancy varieties, all his plants being in admirable condition.

**FINE-FOLIAGE PLANTS.**—Groups of these with Ferns afforded agreeable foils to the flowerin' plants. Messrs. Cypher, Mr. H. James, and Mr. Mould had some large Palms, Crotons, and Cycads, Kentia canterburyana from the first named being very handsome. Mr. R. Butler was first with six Palms, Kentias, Corypha australis, Seaforthia, and Chamerops, large healthy plants. With Ferns and six variegated plants Mr. C. Rann was first, showing huge Gleichenias in the former and several well-coloured Crotons in the latter. Mr. Douglas also showed some fresh Ferns, and Mr. Butler was third with smaller plants.

**TUBEROUS BEGONIAS.**—Messrs. J. Laing & Co., Forest Hill, were first with twelve Begonias, showing good-sized plants of their fine varieties, Primrose Queen, Mrs. J. Freeman, rose; Ball of Fire, scarlet; Norma, Grace Darling, Stanstead Surprise, White Perfection, Princess Victoria, and New Colour, buff yellow.

**CUT FLOWERS.**—These were well represented. Messrs. Paul & Son, Cheshunt, were first with a beautiful basket of Roses gracefully arranged. Roses were also shown by several amateurs. Hardy flowers from Mr. T. S. Ware, and Messrs. Paul & Son, Cheshunt, were very beautiful; the Irises from the same firms and Messrs. Barr & Son being also notable. Mr. J. Douglas was first with a collection of Orchid flowers, beautifully arranged in pots with Ferns, and comprising Odontoglossums, Masdevallias, Laetias, and Cattleyas.

**FRUIT.**—There was not a large display of fruit, and some of the white Grapes were rather green. The Fruiterers' Company's prize for a collection was secured by Mr. Robbins, gardener to E. Dyke Lee, Esq., Hartwell House, Aylesbury, who had some good Melons, President and Vicomtesse Hericart de Tury Strawberries, Alexandra and Early Louise Peaches, Elrue Nectarines, Black Hamburgh, Foster's Seedling and Royal Muscadine Grapes not in first-rate condition. Mr. G. R. Alli, gardener to Major Shuttleworth, Old Warden Park, Biggleswade, was first with Melons, showing McIntosh's Green Flesh and Hero of Lockinge, followed by Mr. J. Douglas and Mr. Robbins.

The best basket of black Grapes was shown by Mr. T. Osman, gardener to W. L. J. Baker, Esq., Ottershaw Park, Chertsey, with Black Hamburgh, small in herry hut well coloured. Second, Mr. G. Bush, gardener to Lady Hume Campbell, Highgrove, Pinner, with very fine bunches. Mr. W. Mowbray, gardener to Earl of Leven and Melville, Fulmer, Slough, was first with Buckland Sweetwater, large and well ripened. Mr. Mowbray was also first with three bunches of black Grapes, Black Prince well coloured, Mr. Osman leading with Black Hamburgh bearing a good bloom, and Mr. Bush was second with the same variety rather red. Mr. P. Feist, gardener to R. Ashton, Esq., Bishopsgate House, Staines, was first with Muscat of Alexandria not fully ripe. Mr. Mowbray was first in the other white variety class with Buckland Sweetwater, and Mr. Bush was second with Foster's Seedling.

Seven competitors entered with two dishes of Peaches, Mr. H. Hepworth, gardener to H. T. Goodwin, Esq., Maidstone, being first with Barrington and Alexander; Mr. O. man second with Grosse Mignonne and Early Silver; and Mr. Nash third with Royal George and Grosse Mignonne. In the Nectarine class, Mr. J. Harris, gardener to Mrs. J. H. Vivian, Singleton, Swansea, was first with Lord Napier and Elrue, highly coloured; Mr. Nash following with Violet Hative and Elrue; Mr. A. Miller, Rood Ashton Gardens, Trowbridge, being third with Hunt's Tawny and Elrue, all of good quality. The only Cherries were from Mr. T. Hare, Wellington,

Grantham—Black Tartarian and Elton; Mr. Worthing and Mr. Mowbray, being the exhibitors of Strawberries.

**MISCELLANEOUS.**—The semicircular hanks of plants in the centre of the marquee were very effective, as usual. Mr. B. S. Williams, Upper Holloway, had a very choice group of Orchids and fine-foliage plants (large silver medal). Messrs. John Laing & Co., Forest Hill, had a bright group of Tuberous Begonias, Palms, Ferns, Orchids, and Caladiums (small silver-gilt medal). Messrs. E. G. Henderson, Pine Apple Nursery, Maida Vale, had a group of Caladiums, Dracenas, Ferns, Palms, Todeas, &c. (silver medal). Messrs. Hooper & Co., Covent Garden, had a tasteful group of flowering and fine-foliage plants (large silver medal). Messrs. Hooper & Co., Covent Garden, had a group of Irises; Mr. T. S. Ware a handsome collection of Paeonies (bronze medal); Mr. John Forbes, Hawick, had a large collection of choice named Pansies of fine quality (certificate).

Messrs. J. Carter & Co., High Holborn, showed a collection of Ixias, greatly varied in colours (certificate). Messrs. Hugh Low & Co., Clapton, showed a handsome group of Cattleyas, Odontoglossums, Dendrobiums, and Cypripediums, very freely flowered (small silver medal). Mr. J. Wiggins, gardener to W. Clay, Esq., Kingston, showed a group of Pelargoniums (certificate). Mr. D. Phillips also had a group of Pelargoniums (large bronze medal). Messrs. W. Balchin & Sons, Brighton, had some plants of the bright blue Leschenaultia biloba major. Mr. C. J. Salter had a group of well-grown Hydrangeas (certificate).

Messrs. James Veitch & Sons, Chelsea, exhibited a number of new plants and some handsome collections of Ixias, Pyrethrums, Anemones, Irises, Paeonies, and miscellaneous hardy flowers (small silver medal). Messrs. W. Cuthush & Son, Highgate, contributed an extensive group of greenhouse plants comprising numerous Heaths, Pimeleas, Epacrises, and hardwooded plants, with Hydrangea paniculata grandiflora (small silver medal). Mr. May showed a group of small Orchids, and Messrs. Wheeler, Weston & Eason had some well grown Fuchsias. Messrs. H. Cannell and Sons, Swanley, had a small group of choice Gloxinias.

Numerous new plants were shown and many of them were certificated.

## ROSE AND HORTICULTURAL SHOW FIXTURES, JUNE AND JULY, 1886.

THE following are the dates of the principal Shows to be held during June and July this year. The great event of the season will no doubt be the provincial Show of the Royal Horticultural Society at Liverpool at the end of June.

Manchester National Horticultural Exhibition, Old Trafford, June 11th to 18th.

Brentwood, June 17th and 18th.

Royal Horticultural Society Committee meetings and Pelargonium Show, June 22nd.

York Floral Fête, June 23rd and 25th.

Royal Horticultural Society Provincial Show at Liverpool, June 29th to July 5th.

Bagshot and Windlesham Rose Society, at Bagshot, Tuesday, June 29th.

Canterbury and Kent Rose Society, at Canterbury, Tuesday, June 29th.

Croydon Horticultural Show, June 30th.

Royal Botanic Society's Evening Fête, June 30th.

Farningham Rose and Horticultural Society, at Farningham, Wednesday, June 30th.

Croydon Horticultural Society, at Croydon, Wednesday, June 30th.

Reigate Rose Association, at Reigate, Thursday, July 1st.

Tunbridge Wells Horticultural Society, at Tunbridge Wells, Friday, July 2nd.

Brockham Rose Association, at Dorking, Saturday, July 3rd.

Eltham Rose and Horticultural Society, at Eltham, Saturday, July 3rd.

Crystal Palace Rose Show, Saturday, July 3rd.

National Rose Society, at South Kensington, Tuesday, July 6th.

Cardiff Rose Society, at Cardiff, Wednesday, July 7th.

Sutton Amateur Rose Society, at Sutton, Wednesday, July 7th.

Oxford Rose Show, Wednesday, July 7th.

Ealing, Acton, and Hanwell Horticultural Society, at Ealing, Wednesday, July 7th.

Bath Floral Fête and Band Committee, at Bath, Thursday, July 8th.

Ipswich and East of England Horticultural Society, at Ipswich, Thursday, July 8th.

Hitchin Rose Society, at Hitchin, Thursday, July 8th.

Hereford and West of England Rose Society, at Hereford, Friday, July 9th.

Maidstone Rose Club, at Maidstone, Friday, July 9th.

Wirral Rose Society, at Birkenhead, Saturday, July 10th.

Diss Horticultural Society, at Diss, July 13th.



### KITCHEN GARDEN.

**TURNIPS.**—Milan has again proved the earliest of fall. We were gathering bulbs of it during the last week in May, and now they are a



good size. They are white, purple tops, good in form, and fine in quality. Turnips are an important crop, and the early ones are greatly relished. We find all good cooks the same in their daily demands for Turnips, and nothing short of an all-the-year-round supply will give satisfaction. Previous to the young ones being ready we were sending in Swedish roots of last year's growth, and although tough they did very well for the stock pot. Advancing crops must be thinned in good time; crowding while young ruins them. A large sowing of Veitch's Red Globe should now be made. It is a useful sort, not very apt to be injured by hot weather, and it remains a long time fit for use. This sowing will be ready for use about the middle of August, and it will keep up a supply until October.

**PEAS.**—We gathered our first dish in the open on June 1st. There were two varieties ready then; one was the dwarf American Wonder, the other a new variety not named, which has proved the earliest medium-growing Pea we have possessed. William I. is falling behind. It has kept its place well, and is still good. Stake all young crops requiring this attention. It is bad practice to allow them to fall over for want of support. Where the weather is very dry water all freely with liquid manure. It is almost impossible to give them too much. Late crops should now be sown. They should have rich deep soil and a warm sunny position. The trench system should also be practised with them, as this will be the means of their keeping strong and healthy during any warm dry weather that may be experienced. Sutton's Latest of All, Laxton's Omega, and Ne Plus Ultra are all good late sorts. The first and second grow compactly, and only attain a height of from 3 feet to 4 feet, but the latter runs up to 6 feet, 7 feet, sometimes 8 feet, and should only be grown where there are tall stakes procurable.

**ARTICHOKES.**—The Globes are very late this season. They are only now beginning to form, and to force them on the plants should have large quantities of liquid manure. Mulching in dry weather is also of much benefit to them. Jerusalem Artichokes are growing freely, but being planted on the same ground as they occupied last year many have come up which have no right there, and the whole of these have been drawn, allowing those only to remain which were planted in rows 3 feet one way and 18 inches the other. A multitude of growths make a fine-looking plantation, but large tubers are only produced by growing the plants quite clear of each other.

**COLEWORTS.**—Where seed of these was sown some time ago the plants will now be ready for putting out, and they should be planted about 15 inches apart each way on ground which has been cleared of early Potatoes or other crops.

**BROAD BEANS.**—These are not ready yet, but they promise well. Where they are wanted as soon as possible pinch the point out of each stem, and this will cause the pods to swell rapidly. Another good sowing of seed should be made for autumn. Carter's Leviathan is one of the finest Beans for late use we have grown.

**KIDNEY BEANS.**—Stake runners as soon as they get out of the seed leaf. They are much better when twisted round a stake than entangling each other, and this occurs when staking is neglected. Sow a row for late use. Dwarf Beans of the Canadian type are rather yellow in colour, the nights being still rather cold for them, but if a sprinkling of soot is placed along each side of the row and a little soil afterwards drawn up to the stems, they will soon attain a deep green hue and grow freely. A little guano water now and again is very beneficial, especially to early rows in dry weather.

**HOEING.**—There can hardly be too much of this done amongst the young crops. It is most serviceable when the soil is dry on the surface, as the weeds are uprooted and soon perish. Weeds are now growing fast in all corners. It is surprising how effectually hoeing checks them. It is the quickest way of all of doing this, and considering how cheap and easy this may be done, weedy vegetable gardens should never be seen. Hoeing down weeds before they have time to seed is profitable labour.

**SEAKALE AND RHUBARB.**—Both of these are now throwing up many bloom spikes, and as these serve no good purpose, unless seed is wanted, every one of them should be cut off before they are in bloom, or at most before they seed. Where really tender young Rhubarb is wanted in July or August, the greater part of the stems may be drawn up, when many young ones will take their place. Where tender Rhubarb is wanted for exhibition, it may always be secured in this way.

**CAULIFLOWERS GOING BLIND.**—Some varieties are worse than others for this. On a piece where we have five sorts planted one has almost all gone in this way, while of others we have not lost half a dozen. As a rule, however, it may be prevented by dusting a little lime into the centre of each plant. Where it is noticed that any have lost their centre or gone blind, there is no use in allowing them to remain, as they will never form good hearts, and the best way is to throw the plants away and replace them with others.

**CAPSICUMS.**—These are sometimes planted out, but they do not always succeed in this way, and the best way is to grow them in a frame and where they can be protected with glass when necessary. There are now empty frames in most gardens, and one may be filled with these. If the frames contain the remains of old hotbeds, the plants may be turned out of the pots and placed in the old soil, but where the frames are empty they may be grown in 7-inch and 8-inch pots. Frequent syringing and plenty of water at the root suits them well when in full growth.

**MUSHROOMS.**—These have been a great success with us this spring. We grow them in cool sheds and find them do admirably there. We made the best bed up about the middle of January; it began bearing by the third week in February, and did not cease doing so until the middle of

May. A three-months supply from one bed is very satisfactory, and the numbers we cut were extraordinary. The cool system quite surpasses the warm one for them; indeed, we have ceased to use our heated Mushroom house and adhere wholly to the natural temperature of the shed. Beds now bearing or beginning to fruit should be kept rather moist, and the surface should always be incased in a coating of hay. This prevents the soil from drying readily, and it also protects the young Mushrooms. As warm weather sets in worms are very apt to work their way up through the stems and into the heads. These are then useless, and many Mushrooms may soon be ruined in this way. A good preventive, however, is dissolve about one tablespoonful of salt in two gallons of water, and water the bed completely with this. It should not be given cold, but heated to 80°.

#### FRUIT FORCING.

**PINES.**—*Fruit Ripening.*—When the fruits commence colouring syringing must cease, but the supply of moisture or water at the roots must be maintained, affording it whenever necessary. With a view to improve the quality of the fruit ventilate whenever circumstances permit, but do not allow the temperature to fall below 80° in the day, applying fire heat to maintain a night temperature of 70° to 75°, gradually reducing the moisture in the house. Queen and Providence Pines started into fruit early in February will ripen this month, coming in about three weeks or a month before Smooth-leaved Cayenne, Charlotte Rothschild, and similar varieties started at the same time and under similar conditions. They afford a good successional supply, which may be still further extended by removing some of the plants with the fruits to a cooler house. Although the Providence Pine is not nearly equal to a Queen in quality, yet its size being superior, a limited number should be grown, as large fruits are very useful at parties if only for effect in table decorations. The heat at the roots must be kept at 85° to 90°.

*Plants for Winter Fruiting.*—The strongest of the plants put in the fruiting pots last September will now be showing fruit; if not, means must not further be delayed to effect it for a supply of this once highly prized and now much-neglected fruit for winter use. The plants should be brought together and subjected to a comparative state of rest for the next month or six weeks, lowering the heat at the roots to 75°, maintaining a free circulation of air about the plants in favourable weather, ventilating at 75°, and allowing the heat to fall to that degree before closing the house, only employing artificial heat to prevent the temperature falling below 60° at night, not withholding water altogether, but wherever a plant becomes dry afford it liberally. The smaller suckers of last autumn that were wintered in 7 or 8-inch pots, and shifted this spring, must be kept growing until the pots are well filled with roots, at which time, if considered necessary, they may be subjected to the same treatment as advised for the larger ones, and these plants will then give a successional supply of fruit.

*Ventilating, Watering, Shading, &c.*—Young stock will be making rapid progress, and should be regularly attended to in every particular, allowing such plants sufficient space for development, as nothing is so injurious to a sturdy growth as crowding in the early stages. Ventilate early in the day at 75° to 80° to render the foliage dry before it is affected by the sun. Examine the plants twice a week for watering, not giving any until it is needed, and then a thorough soaking with tepid liquid manure, being careful not to give it too strong. Discontinue shading succession plants, but fruiting plants with the crowns in close proximity to the glass will require a slight shade from powerful sun. Syringe the plants on bright afternoons, and otherwise maintain a genial condition of the atmosphere by sprinkling the house; but avoid much moisture in dull weather, as it only tends to cause soft growth. So long as water remains in the axils of the leaves syringing is not so much required, and in watering pour the water well up the plants, as the axils of the leaves at the base have roots that contribute to the vigour of the plants and swelling of the fruits.

*Spring-potted Suckers.*—The strongest of those potted last March should be in their largest pots; if not, there must not be any further delay, as to allow them to become much root-bound is debilitating and detrimental to their after well-doing. Recently potted plants should have a regular bottom heat of 85° to 95°, and be thoroughly watered after potting, not giving any more until the soil becomes dry. A too-wet soil is not favourable to the formation of roots.

*Potting Suckers.*—The early-fruited plants as they finish will afford suckers, which should be taken in sufficient quantity to meet the demand and started at once, which will afford plants for fruiting about this time next year, forming a supplementary batch to those started in spring. The treatment then given will answer for these, only they will require more careful shading and frequent attention to damping.

**MELONS.**—*Fruit Ripening.*—Plants with the fruit ripening should have a plentiful supply of air, and water should be withheld from the fruit. If the plants are strong and there is a disposition to crack, in addition to withholding water from the roots cut the bine carrying the fruit half and not more than three parts through a few inches below the fruit. A dry atmosphere is essential, and a temperature of 70° to 75° artificially, falling about 5° at night. If the sun be very powerful place a slight shade of some kind directly over the fruit, as Melons ripening become heated, and do not ripen nearly so regularly nor become so high in flavour as those that come on more gradually. Water need only be given to prevent flagging, and a slight shade from bright sun after a dull period is much the better way to prevent flagging than heavy watering and a close vitiated atmosphere.

*Fruit Swelling.*—Add more soil to the hillock or ridges. Let it be



warm, moderately moist, rather heavy, and press it down firmly. Give a thorough soaking of water as soon as the fruit is the size of an egg, and follow in the course of a day or so with tepid liquid manure, then mulching with horse droppings, exposed for a few days in an open shed and turned over daily. Water will be required about twice a week, or only once in dull weather. In narrow borders the waterings will need to be more frequent; in large borders, or beds over fermenting materials, it will not be needed so often. Remove all fruit but three or four on a plant, and all staminate and pistillate blossoms, and afford the needful supports. Stop or remove laterals freely—not great reductions at a time, but little and often, not allowing secondary and tertiary growths to interfere with the principal. Syringe twice daily—in the afternoon not later than four o'clock, having the foliage fairly dry before night, and sprinkle the house about 5.30 to 6 P.M. with water if the droppings are used, or if not with liquid manure, and give a little ventilation at the top of the house when looking round the last thing at night. This will save some trouble if no air is given early in the morning. On bright mornings commence ventilating about seven o'clock, or at 75°, and increase it with the advancing sun, keeping through the day at 85° to 90° with bright sun, and 80° to 85° with alternating gleams. Close at 80° to 85°, running up to 90° or 95°. Fire heat will only be necessary on cold nights and in dull weather, for we must guard against a sluggish circulation of sap.

*Plants Setting Their Fruit.*—The plants should be thin in foliage that the light and air has free access. The growth will be stout and short-jointed, and the leaves stout in texture. The blossom will be strong. Ventilate a little constantly, and, if dull have sufficient warmth in the pipes to cause a circulation of air, and falling below 65° at night or 70° to 75° in the daytime. Withhold water from the roots, but the soil must be sufficiently moist to prevent flagging, and only moderate moisture will be required in the atmosphere, damping in the morning and again in the afternoon, but keep it from the plants and blossom. To prevent the deposition of moisture on the blossom provide a warm buoyant atmosphere. Fertilise the blossoms about noon of fine days, and when several blossoms are expanded on a plant, so as to insure uniformity of swelling, stop at one joint beyond the fruit.

*Young Plants.*—Train with one shoot for trellises, and rub off the laterals up to the first wire, and then every alternate one on opposite sides afterwards, stopping the leading shoots when about two-thirds up the trellis. Flowers ought to show on the laterals; if no blossom shows at the second joint stop at that. Plants for training over the surface of the bed should be stopped at the second leaf. Select four of the resulting shoots, training two to the front and two to the back of the frame or pit. Remove all others carefully with the point of a knife, but if only two shoots result stop them at the second or third leaf and make selection of the best for training as before advised. Keep the stem clear of laterals and leaves for a space of at least 6 inches from the collar. Remove every alternate lateral on the shoots, stopping the shoots when 12 to 15 inches from the sides of the pit or frame. Let there be no deficiency of moisture at the roots, and add fresh warm soil to the ridges or billocks as the roots protrude, but the soil being put in in quantity as advised none will be required in pits or frames utilised for Melons after Potatoes and bedding-out plants. Syringe at closing time, but avoid wetting the stems, as it may lead to canker, which should be kept under by rubbing quicklime into the affected parts until dry. Keep the house well ventilated, so as to insure a short-jointed sturdy growth. Continue to put out plants as pits or frames become vacant, and if a gentle warmth at the roots can be afforded it will give the plants a start and be all that is necessary. Close early and keep the growths well regulated, not less frequently than once a week. Shade only to prevent flagging; it will only be necessary for an hour or two at midday under powerful sun.

*Sowing for Late Fruit.*—A last sowing should be made at once for planting in dung-heated frames or pits, the plants from which will be useful for getting successions where crops have already been taken, or being taken, and the plants are not kept from collapsing through red spider or other disaster. Plants from this sowing will afford useful fruit at the latter part of September. Those with light well-heated structures may continue to make sowings as required up to the end of July. The plants from the last-named will continue the supply up to the beginning of November, after which it is useless thinking of having fruit of good quality.

*FIGS.—Early-forced Trees.*—Generous treatment will be needed after the first crops are gathered to enable the trees to swell the second. Syringe twice a day to keep red spider in check, and afford liquid manure when watering is necessary, trees in pots requiring it daily, sometimes twice a day, and trees in borders once or twice a week, according to the extent of the rooting area. The second crop should be thinned before the fruit is the size of walnuts, and in thinning reserve the largest fruit at the base of the shoots. Mulch trees in pots with rich material.

*Succession Houses.*—When the fruit commences to ripen, a free circulation of warm dry air should be afforded, which is essential to high quality, not less so being the tying-in and regulating of the shoots by thinning and stopping, so as to afford the fruit the benefit of all the light practicable. The moisture in the atm. sphere will need to be moderated, not wetting the fruit; though if red spider attack, the fruit should be gathered closely and a good syringing given, which will not injure the remaining fruit, provided it is done early on a fine day, so that the moisture does not remain long on the fruit. Do not allow any lack of water at the roots, yet give lessened supplies than when the fruits were swelling.

*Young Trees in Pots for Next Year's Early Forcing.*—These must not be neglected or disappointment is inevitable. They must have all

the light possible, and be kept as near the glass as practicable without touching, so as to secure sturdy well-ripened growth, keeping clean by syringing, and affording liquid manure to effect a stout growth. The growth complete, they may be stood outdoors to induce rest, but the wood must be well ripened previously, and to be of use for early forcing the wood must be matured early.

#### THE FLOWER GARDEN AND PLEASURE GROUND.

*Late Bedding Out.*—The very unfavourable weather experienced of late will have had the effect of retarding this work, and on the whole the majority of the plants will succeed all the better for being kept out of the cold and wet ground for a time longer than usual. Those that were planted early look very miserable indeed, and will be some time before they form fresh roots and growth. Take the first opportunity of loosening the surface of the soil about them, and this will let the air and warmth into the roots, and at the same time arrest rapid evaporation and cracking of the soil. Many probably are only just commencing in earnest, and these may now complete the beds as they proceed, Iresines, Coleuses, and other tender plants having now been sufficiently hardened off to admit of their being planted out. Should, however, the weather still remain cold, spaces ought to be kept for them, and the planting deferred for a few days longer. The outer rings ought always to be planted first, finishing in the centre. Those who have had but little practice in planting ought to have the lines marked for them either with the back of a rake or with large wooden compasses, the latter being especially useful for giving correct marginal lines. If it is proposed to peg down the plants in order to make them cover the ground evenly and neatly, all the strong growers, such as Zonal Pelargoniums, Calceolarias, and Iresines, should be planted in a sloping direction, this rendering them less liable to snap off.

*Odd Corners.*—There are many corners that have to be filled after the principal beds are completed, and for these there are frequently an insufficiency of plants. When this happens with us we fall back upon the old stock plants of Heliotropes, Ageratums, Verbenas, Iresines, Abutilons, Petunias, and such like, supplemented, if need be, with strong old pot plants of Fuchsias, double and single Zonal Pelargoniums, Plumbago capensis, Begonias, and Marguerites, and these judiciously mixed not unfrequently surpass in attractiveness the more formal beds. As many of the plants used are in the first instance in a semi-starved state, we take the precaution to add some rotten manure or plenty of leaf soil to the beds or borders, as without this the plants make but poor progress. Corners are generally neglected as far as renewing the soil or manuring is concerned, hence the stunted appearance of the plants occupying them. Strong pot plants when first planted soon get dry at the roots, and this should be guarded against, mulching with leaf soil, short manure, or other material, in addition to occasional waterings, which are necessary in most seasons.

*Carpet Beds.*—These are generally taken in hand after the other beds are nearly completed. If the hardy neat-growing plants forming the groundwork are already planted the work of filling in the figures is a comparatively simple matter, and an immediate effect is the result. As the Sedums, Mentha, Antennaria, and Herniaria have necessarily to be pulled to pieces prior to planting to insure a neat and well-covered surface, it follows that if this is done in hot sunny weather they must be properly fixed in the soil, be frequently lightly watered overhead, and be shaded from bright sunshine for a time. Thus treated they soon become established and will spread rapidly. As the lines have to be very neatly planted, the use of the trowel has to be discontinued, the dibble being the best tool for the work. Small plants of Golden Pyrethrum direct from the seed bed are the easiest to plant, and they should be disposed about 2 inches apart. If disposed further apart they grow too coarsely, and are not so easily kept to a fine line. Alternantheras may also be planted with a dibble, or better still with the hand, and they should just touch each other all round, as they sometimes get smaller instead of larger when first put out. Our plants are strong ones, but the large leaves soon disappear, and are replaced by neater and more highly coloured shoots. Alternanthera paronychoides major is a good dwarf yellow sort, while A. magnifica and A. amœna spectabilis are very richly coloured and distinct. Lobelias are apt to fail early in the autumn; but in large figures L. pumila magnifica is sometimes used with good effect. Ageratum Cannell's Dwarf is very neat and floriferous, and is well adapted for carpet beds. Iresines as a rule are too tall, but I. Lindeni can be used in large figures. Single plants of Echeverias metallica and metallica glauca, Pachyphiton bracteatum, Agave americana, Chamæpseuce diacantha and Cassabona, Centaurea ragusina compacta or candidissima are suitable for planting singly in the centre of circular figures, or for dotting among dwarf plants in large figures, while for the centres of dwarf plants of Grevillea robusta and, better still, Cordyline indivisa, are effective.

## THE BEE-KEEPER.

### PLACING AND REMOVING SUPERS.

At pages 430, 431, "Felix" gives very plain and valuable instructions regarding placing and removing supers, and desires to learn whether I can give any other "useful hints" that he has not mentioned. I fear I cannot from the standpoint he takes, but I will take



the salient points of his article seriatim. Before doing so I will endeavour to make plain to your readers that the construction of his and my hives are apparently different, which makes a great difference in the mode and ease of manipulation. All my hives are smooth on the upper surface, and bees are admitted to the supers from the outside spaces only. This secures—if the stock hive is large enough—an entire immunity from brood in the supers; purity of comb is secured by the absence of the vitiated air that ascends from the centre of the brood nest, which should be free from draught, and as a rule the combs in the supers will not be attached to the crown of the hive. Supers so detached are prettier and easier managed, both in the on-putting and the taking off. In the former case I can assure bee-keepers that gloves irritate the bees, and more bees are killed by their use than without them. My plan is never to approach a hive if the bees show signs of spitefulness without taking means to quiet them. Nothing is better than carbolic acid. Smear the alighting board with it in such a manner that it will not injure the bees, and slip beneath the combs some sheets of carbolicised paper. This will at once subdue the most vicious bees. Smoke with me is a thing of the past. It irritates the bees and affects the honey in the hive, and cannot do otherwise than injure the brood. When that operation is past uncover the hive, and if the operator is timid have more pieces of carbolicised paper. Place these at the sides of the slides or whatever closes the opening, then place the supers and cover as directed by "Felix." Supers on Stewarton hives can be placed first, then the slides can be withdrawn after, thus securing the timid bee-keeper an entire immunity from stings. Stand behind the hives in all your manipulations. If any of the hive tops are not made after this fashion do so the first opportunity. Wide holes in the centre of straw hives and narrow top bars of frames give the bees a great deal more labour, irritating them much whenever manipulated, and the beauty of supers is destroyed.

Bellglasses are a sort of luxury some bee-keepers have a desire for, but are unprofitable and difficult to handle. I cannot recommend these to be used on any hive unless on a straw hive expected to swarm. Very often a good-sized super will be got from such a hive, and yet not retard the occurrence a single day, and is likely to be finished in greater purity after the exodus of the swarm by the remaining but fewer bees. From the slippery nature of the glass the bees are more liable to fasten their combs to the top of the hive than when wood is used; but where they are not allowed to build their combs upwards very small attachments will be the result.

When it can be carried out 3 P.M. is the most suitable time of the day for all manipulations. At that time the heat is greatest and the bees are busy and less inclined to rob. If honey is not plentiful the bees are not only more irritable, but are liable to rob; when plentiful are neither. The removing of a bellglass requires more care than that of a super. If thoroughly finished the bees retreat downwards, but very often a great many bees cling to the combs, and if there are no broken cells they begin at once and nibble the seals, destroying the appearance of the comb, and if young bees are in it, which is often the case, are liable to soil the combs after they have gorged themselves with the honey.

To get the bees quickly and successfully out of these glasses, and to prevent the comb being broken or soiled, is the work of the bee-keeper. If the day is warm and the honey is coming in plentifully there is little or no difficulty in getting the bees out. Immediately the glass is inverted the bees will leave it and enter the cap held over it; but if the weather is unfavourable then the bees cling to the comb and will leave it reluctantly.

The moment a bellglass is detached from the top of the hive slip a carbolicised paper in a line as the combs run until all is covered, unless opening enough to allow the bees to pass downwards into the hive. This operation is easily performed if three wedges are used to support the bellglass—one in front and at each side, leaving the back part open for paper. Another plan is to slip a cardboard or piece of wood fitted with a trap, and set it in a box or on a stand close to the hive and cover thoroughly. The bees will leave as well as the queen, should she happen to be in the glass, and pass out and into the hive (if a gangway has been provided) without the loss of a single bee or jar to the bellglass. If there is any likelihood of the bees in the glass breaking the seals have a furrow or two on the top of the board, and put a little liquid honey in them; the bees will sip this and the seals will not be interfered with.

Removing supers is, comparatively speaking, mere child's play. They must, however, be all of the divisional sort. Close crowns should not be tolerated in the apiary; tiering cannot be performed with them while the bees are as difficult to get out of that sort as from bellglasses. When removing supers of the right sort we care not what sort of a day it is nor what time. Before packing up our supers we cover the top ones with a piece of white calico. Having the carbolicised paper sheets in readiness, we uncover the top of the supers (after a card or wire has been passed between each tier or

top of hive), beginning at one side, slipping in the paper as each opening appears, from which not a bee need escape. By the time the last paper put in is withdrawn, which may not be longer than a minute, there will not be a bee left in the super, and no seals broken.

When is a hive ready for supering? This is an important question. No hive is ready for supering unless it has its complement of bees in a full-sized hive. If hives are undersized little good can be got from them beyond a pigmy super. If full-sized and of full strength the sound of the bees at night, together with the weather, indicates the proper time to super, but unless crowded better not to be in too great a hurry. The number of supers to be kept on a hive depends upon the abundance or the paucity of flowers in the locality as well as that of the hive of the season. If at the beginning more super space may be given, but if further on less. The bee-keeper must exercise his own judgment in this, and learn how much super space his bees are likely to fill during the season the honey is likely to last. We generally build up by degrees (the small supers are best adapted for this work), and we have had frequently from 100 to 200 lbs. of supers filled and on at a time.

The plan of raising the first-put-on super and placing an empty one beneath is not objectionable if the weather is and continues fine, but if that is not likely to be it should not be attempted, because the bees will make an effort to fill the vacuum at the expense of the raised super. With the little supers I work them by lifting nearly full ones, placing these over other filled or partly filled ones, and adding empty ones on the most convenient place over others advancing. By this means I manage at times to get some off quicker; but as a rule the honey season lasts so short that no supers are finished; nor ought they to be interfered with till the season is past, but remove as soon as the bees become inactive, or the comb will become discoloured.

A one-windowed room is doubtless a good place for manipulating bees, which I often take advantage of; but a chest having a pane of glass in which to place the supers as they are taken from the hive I much prefer, because the bees find their way more readily to their hive, and are easier caught and carried to it than when they are allowed to escape by the window, many of which must necessarily be lost because of their youth, perhaps never having flown, but the carbolic acid obviates all risk. To what "Felix" has said with the above remarks nothing need be added. If we do not quite agree it is because our hives and appliances are different.—A LANARKSHIRE BEE KEEPER.

P.S.—The weather still continues cold and damp. The thermometer on the morning of the 27th May stood at 25°. There has been only four days during the whole month the bees could venture out. My hives are all ready for swarming or supering, and queen-rearing, which should have been going on, is at a standstill owing to the extreme cold. I have fed none yet, but shall be compelled to begin soon unless genial weather sets in. Hives allowed to go back now will be unprofitable. It is better to feed in time than to allow any to suffer from want.—L. B. K.

### INTRODUCING QUEENS.

"A SURREYSHIRE BEE-KEEPER," page 411, says, "When we consider the life history of the bee, it is sometimes difficult to know which to admire most—its wondrous wisdom or its fatal folly. At times it would seem to possess the power of reasoning, at other times it seems deprived of the slightest evidence of instinct. Take, for instance, the behaviour of bees when deprived of their queen. One would imagine that they would only be too thankful to accept the first one offered to them, but, on the contrary, they will frequently sting her to death, or suffocate her by balling, even when she has been caged for forty-eight hours . . . and the older the bees the more difficult it is to introduce a queen." Then he gives elaborate directions for introducing one, which reads like a passage in some old work on alchemy, and winds up by saying, "Unless obliged, we do not attempt to introduce queens either in early spring or late autumn. Bees are kittle cattle; no method has yet been found to be infallible."

After reading such remarks by one who presumably examines and grants experts certificates of competency in bee-keeping on behalf of the British Bee-keepers' Association, it is quite refreshing to read the first paragraph in "Lanarkshire's" article, which follows that referred to above.

Had "A. S. B. K." not been such a great authority in bee matters, and so important a one, that his letters in this Journal are made use of in the *British Bee Journal*, I would have treated his letter as by a novice, but instead, I must, in the interest of progressive apiculture, take him to task for being behind the times.

He has said, a fresh queen cannot readily be introduced to old bees, nor in early spring or late autumn would he have us to accept the absurd theory that if bees had no means of rearing a queen, that Nature had ordained that the stock should die off, and if a strange queen should happen to come to them (say one lost on her bridal trip, which often happens) that the bees should "ball" her to death. Such a teaching



is quite contrary to all the laws of Nature, and would stand alone. But that the contrary is the fact any bee-keeper can prove for himself, if he will bear the following law in mind—viz., "That when bees are queenless, and have no means of rearing one (that is, have no eggs, unsealed brood, or queen cells in their hive) they will invariably accept a fertile queen at the flight hole, or dropped in from the top," provided they have been queenless forty-eight hours. There needs no book-writing for this system of direct introduction, as the practice can be varied to suit all cases, and nothing but the simple rule need be remembered to introduce a queen by it at any time of the year. I have used it for years at all times of the season, and never had a single failure, and none ever will have a failure, unless he is operating on a stock of bees as stupid as your correspondent thinks they are. No matter how old the bees are, or how long they have been queenless, you may safely let your most valued queen run in at the entrance.

This simple system is particularly valuable in the fall, when hives are broodless, or nearly so. The queen I am going to introduce I keep in a Benton mailing box with a few bees. The old queen I remove, and carefully look for eggs or unsealed brood at same time. If I find any I put it into another hive, then any time after forty-eight hours I give them the queen, and take no further notice of them. In summer, if I wish to divide a stock on purpose, I place a hive containing a few empty combs on the old stand, and move the stock to a fresh one, thus I catch all the old bees, and if not sufficient, then I shake in a few young ones from the old stock, being careful not to get the queen—these old queenless bees will always accept a stepmother after forty-eight hours—after which I should give them some combs of sealed brood. If it is not wanted to divide a stock, and it contains eggs and brood, say in early spring, and it is not advisable to give it to another stock, the queen cells started should be carefully cut out on the ninth day after removal of the old queen, when the fresh one could be given them forty-eight hours afterwards. It is not necessary to await the arrival of the new queen before removing the old one, or she can be kept in a mailing cage. A friend of mine introduced a queen under this system at the beginning of May that had been queenless all winter, which I found on the 29th of May in a most prosperous condition. He could not have introduced one by caging, but with this, novice though he was, success was certain.

This method, or "law" rather, is not a new notion, but one that has been tested for years. Let all try it, particularly novices, and then they can say whether "bees are kittle cattle," or "no method has yet been found to be infallible," or not. Of course this method puts no grist in the supply dealer's mill, not even the price of an introducing cage, or a repetition of order through the other queen being lost, therefore it has been for years neglected by the writers in the *British Bee Journal*, whose editor, I see, in a reply to a correspondent, page 238, May 27th, says, "Worker bees do not store anything in their cells but honey." No doubt some novices will ask if they do not also store pollen and water.—A HALLAMSHIRE BEE-KEEPER.

#### TRADE CATALOGUES RECEIVED.

Messrs. Boulton & Paul, Norwich.—*Illustrated List of Garden and Poultry Appliances.*



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**TO CORRESPONDENTS.**—We desire to assure those of our correspondents whose letters and communications are not promptly inserted that they are not the less appreciated on that account. Our pages are practically filled several days prior to publication, and letters arriving on Wednesday morning, except by special arrangement, are invariably too late for insertion. The delay in the publication of some of these is not of material importance, but reports of meetings and shows held a week previously lose much or all of their value if not received in time to appear in the current issue.

**Books (Joseph Smith).**—Probably Thomson's "Fruit Culture Under Glass" will meet your requirements. It is published by Messrs. Blackwood, and can be obtained through a bookseller. (E. A.).—The fourth edition of

"Mushrooms for the Million," with supplement, is in the press, and will shortly be published. Though the work will be materially enlarged, there will be no increase in price—1s. 2d. post free.

**Address (W. H. Strive).**—Your letter has been received and forwarded to the advertiser of the articles. (J. E. T.).—If you enclose a postcard addressed to yourself, we will give you the information you require.

**Wood Ashes—Chemical Manures (H. S. S.).**—You will find the information you require in our reply to "F. J.," on page 451 last week, and which had probably not reached you when you posted your letter.

**Manure for Grass (L. S. G.).**—You would find on page 456 the information you seek, and which had not reached you when you penned your inquiry. The ingredients can be had from manure dealers in various districts.

**Sowing Seeds of Bulbous Plants (W. A.).**—You cannot, perhaps, do better than sow the seed in sandy soil, well drained, early in October, and the seedlings ought to appear in the spring; that will be better than deferring the sowing till March or April.

**Transplanting Strawberries (J. E.).**—The best time of planting such large plants is as soon as possible after the autumn rains commence, or in time for the plants to make fresh roots freely before winter. If disturbed in the summer, and a term of hot dry weather follow, they will be slow in getting established, and may be considerably weakened. The leaves should not flag after removal. We are obliged by your letter.

**Management of Fruit Trees (H. P.).**—The sentence to which you refer—namely, "Close prune spring growth, but only shorten midsummer growth sufficient to admit air and light freely to the spurs," is included in an article under the heading of "Hardy Fruit Garden," in the *Journal of Horticulture*, page 225, September 4th, 1881. The number containing the article is out of print, but it can be referred to in vol. ix., new series. It was written by a very successful cultivator of hardy fruits.

**Seedling Mimulus (W. F. B.).**—We have seen flowers similar to those before us, but not exactly like them. The habit and floriferousness of the plant must be taken into account in estimating the merits of a variety, and the best advice we can give is that you grow a few plants well and exhibit them, as in no other way can the commercial value of a new variety be so well ascertained. You can of course send flowers to florists, but we doubt if they will offer you any substantial sum for the stock from a sight of the flowers alone.

**Pansies Dying (J. P.).**—The cause of the sudden collapse of Pansies cannot be exactly defined. It is a very old "grievance," and assuming the plants are established in good time and not twisted by the wind, there is either something in the soil that is injurious, such as grubs, or it is defective in some constituent that is requisite for the continued support of the plants. Those planted late in the spring are the most liable to "go off" prematurely, while they fail in one part of a garden and succeed in another. If you are especially anxious to grow them on the particular plot in which yours fail, you will not be likely to succeed unless you remove a great part of the old soil and introduce fresh of a suitable nature. This at least is what experience has taught us in failing and succeeding in growing these flowers. It is always the best to grow them in that part of a garden in which they "naturally do well."

**Adiantum cuneatum for Market (D.).**—This Fern is usually grown in 5 and 6 inch pots in the London Fern-growing nurseries, but some plants are shifted into larger pots. The plants occupy side beds in low houses or pits, and are stood upon ashes or some other moisture-holding material. They must have room to develop their fronds and pay very well for good cultivation. We should not expect the plants to do satisfactorily if crowded together. They can stand moderately thick, and room can be materially saved if all the old or saleable fronds are removed from the plants instead of cutting a few here and there over the whole batch of plants. The plants from which the fronds have been removed can be stood thicker together while they develop others. Those from which the fronds have not been gathered can be given more room until ready or wanted for cuttings. This Fern is improved by dividing and repotting in spring. This practice supplies a fresh medium for new roots, and they do much better again when once established. If they have been in 5-inch pots the ball should only be cut into two parts and each half potted into a 6-inch pot. Feeding is beneficial after the pots become full of roots, but we prefer some fine artificial manure, such as Standen's and others to liquid for them, the former being easily applied, and acts very quickly upon the plants; this is what is wanted. A little sprinkled on the surface every three weeks after the pots are full of roots will be ample for them. There is another point of great importance in growing these Ferns for cutting, and that is, that new stock must be raised occasionally. By continually picking the fronds from them as they are fully developed the plants in time become exhausted, in fact they are much less vigorous and will fail to yield the same quantity of fronds. Seedlings grow very freely and some should be raised yearly to replace the weakened plants. If we were growing fronds for market we should always have a quantity of young plants coming forward. A large stock of plants can soon be raised by this method in constantly damp soil and a close shaded and moist position.

**Election of Strawberries (Aberystwith).**—There is no number of the *Journal* disposable from this office that contains an election of Strawberries. The following is the result of an election conducted by the Rev. C. P. Peach some years ago, with remarks appended indicating the merits and requirements of the varieties:—1. Sir J. Paxton (Bradley).—Named by eight; placed among the first three by three, with sixteen votes in its favour. Medium season, fine quality, good bearer. 2. President.—Named by eight; placed among the first three by two, with fourteen votes recorded. Medium season, good quality, free bearer. 3. British Queen (Myatt).—Named by seven, with seven votes. Medium season, fine flavour. Requires strong soil. 4. Dr. Hogg (Bradley).—Named by six, with ten votes; placed among the first three by two persons. Medium season, fine flavour, large fruit. Requires strong soil. 5. Cockscorn (Royal Gardens).—Named by six, with ten votes. Medium season, very large fruit. 6. Eleanor (Myatt).—Named by five, with eight votes. Large fruit, late season, good cropper, inferior



flavour; placed in the first three by one person. 7. Lucas (De Jonghe).—Named by four, with six votes; placed among the first three by one person. Mid-season, five flavour, good cropper. Requires good soil. 8. La Constante (De Jonghe).—Named by four, with seven votes. Mid-season, small fruit, good bearer. 9. Elton Pine.—Named by four, with five votes. Late season, medium bearer, sharp acid flavour. 10. Frogmore Late Pine.—Named by four, with four votes. Late season, good bearer, medium flavour. Requires strong soil. 11. Filbert Pine.—Named by three, with four votes. Mid-season, fine flavour, good bearer. Requires good soil. 12. Early Prolific (Roden).—Named by three, with five votes. Early season, fine quality, good cropper. 13. Vicomtesse Héricart de Thury.—Named by three, with five votes. Medium early, good bearer, medium quality. 14. Prince of Wales (Ingram).—Named by three, with four votes. Spoken of very highly by Mr. Marsden for light soils. 15. Black Prince.—Named by three, with four votes. Early, small, poor quality. 16. Sir C. Napier.—Named by three, with four votes. Mid-season, medium quality, good bearer. 17. Mr. Radclyffe.—Named by three, with three votes. Mid-season, good quality, fair cropper. Requires strong soil. 18. Keens' Seedling.—Named by three, with three votes. Early, medium-sized, poor quality. The following have been named by two persons:—Empress Eugénie, alias Black Bess, Eclipse, Wonderful, Crimson Queen, Rivers' Eliza, Bicton White Pine; the following once:—Scarlet Pine, Sir Harry, Guinevere, James Veitch, Her Majesty, Souvenir de Kieff, Belle de Paris, Aromatic, Rifleman, Jucunda, Marguerite, Premier, Garibaldi, Duke of Edinburgh, Admiral Dundas, Amateur, Bonne Bouche, and Waite's Seedling. Of these Amateur, James Veitch, and Aromatic are as yet little known, and likely to prove very serviceable; and Scarlet Pine, Crimson Queen, and Bonne Bouche are fine-flavoured sorts worth growing, especially in large gardens. We may consequently select the following:—Early.—Early Prolific (Roden), and Vicomtesse Héricart de Thury. Medium.—Sir J. Paxton, President, British Queen, Dr. Hogg, La Constante, Cockcomb, Lucas, and Filbert Pine. Late.—Elton, Frogmore Late Pine, and Eleanor.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (Somerset).—1, *Carex hirta*; 6, Too young to be determined; 3, *Carex vulgaris*; 4, *C. muricata*; 5, *C. sylvatica*; 6, *C. remota*.

#### COVENT GARDEN MARKET.—JUNE 9TH.

STEADY trade, with prices the same.

##### PLANTS IN POTS.

		s. d.	s. d.			s. d.	s. d.
Aralia Sieboldi ..	dozen	9	0 to 18	Ficus elastica ..	each	1	6 to 7
Arbor vitæ (golden)	dozen	0	0	Fuchsia ..	per dozen	6	0
„ (common)	dozen	6	0	Foliage Plants, var.	each	2	0
Arum Lilies ..	dozen	0	0	Geni-tas ..	dozen	6	0
Azaleas ..	dozen	0	0	Hydrangea ..	per dozen	9	0
Bedding Plants, var.	doz.	1	0	Ivy Geraniums	per dozen	5	0
Begonias ..	dozen	6	0	Lilies of the Valley, in			
Calceolaria ..	per dozen	6	0	„ pots, per doz.		0	0
Cineraria ..	dozen	0	0	Lobelias ..	per dozen	4	0
Cyclamen ..	dozen	0	0	Marguerite Daisy	dozen	8	0
Cyperus ..	dozen	4	0	Mignonette ..	per dozen	5	0
Dracena terminalis, dozen	30	0	60	Musk ..	per dozen	2	0
„ viridis ..	dozen	12	0	Myrtles ..	dozen	6	0
Erica, various ..	dozen	12	0	Palms, in var.	each	2	6
Euonymus, in var.	dozen	6	0	Pelargoniums, scarlet, doz.		3	0
Evergreens, in var.	dozen	6	0	Pelargoniums	per dozen	9	0
Ferns, in variety ..	dozen	4	0	Spiræa ..	dozen	6	0

##### CUT FLOWERS.

		s. d.	s. d.			s. d.	s. d.
Abutilons ..	12 bunches	2	0 to 4	Marguerites ..	12 bunches	3	0 to 6
Anemone ..	doz. bunches	0	0	Mignonette ..	12 bunches	3	0
Arum Lilies ..	12 blooms	4	0	Narcissus, various	12 bunches	0	0
Azalea ..	12 sprays	0	6	„ Double white	12 blooms	1	0
Bouvardias ..	per bunch	0	6	Pelargoniums, per 12 trusses		0	9
Camellias ..	12 blooms	0	0	„ scarlet, 12 trusses		0	4
Carnations ..	12 blooms	1	0	Pæonies, various	12 blooms	0	6
Chrysanthemums	12 blooms	0	0	Ranunculus ..	12 bunches	3	0
Cyclamen ..	doz. bunches	0	0	Roses (indoor), per dozen		1	0
Daffodils ..	12 bunches	0	0	„ Tea ..	dozen	0	9
Epiphyllum ..	doz. blooms	0	0	„ red ..	dozen	2	0
Encharis ..	per dozen	4	0	Primroses, Yellow, dozen			
Gardenias ..	12 blooms	2	0	„ dozen bunches		0	0
Helibore ..	doz. blooms	0	0	Primroses, Double White,			
Hyacinths, Roman, 12 sprays		0	0	Pyrethrum ..	12 bunches	9	0
Iris ..	12 bunches	9	0	Spiræa ..	12 sprays	2	6
Lapageria, white, 12 blooms		0	0	Stephanotis ..	12 sprays	2	0
Lapageria, red ..	12 blooms	1	0	Tropæolum ..	12 bunches	1	0
Lilac ..	per bunch	2	0	Tuberose ..	12 blooms	0	6
Lilium longiflorum, 12 blms.		3	0	Violets ..	12 bunches	0	0
Lily of the Valley, 12 sprays		0	4	„ Czar, Fr., ..	bunch	0	0

##### VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes ..	dozen	1	0 to 0	Lettuce ..	dozen	1	0 to 1
Asparagus ..	bundle	2	0	Musbrooms ..	punnet	0	6
Beans, Kidney ..	lb.	0	9	Mustard and Cress punnet		0	2
Beet, Red ..	dozen	1	0	Onions ..	bunch	0	3
Broccoli ..	bundle	0	0	Parsley ..	dozen bunches	2	0
Brussels Sprouts ..	½ sieve	0	0	Parsnips ..	dozen	1	0
Cabbage ..	dozen	1	6	Potatoes ..	cwt.	4	0
Capsicums ..	100	1	6	„ Kidney ..	cwt.	4	0
Carrots ..	bunch	0	3	Rhubarb ..	bundle	0	2
Cauliflowers ..	dozen	0	0	Salsafy ..	bundle	1	0
Galery ..	bundle	1	6	Scorzonera ..	bundle	1	6
Coleworts ..	doz. bunches	2	0	Seakale ..	per basket	0	0
Cucumbers ..	each	0	3	Shallots ..	lb.	0	3
Endive ..	dozen	1	0	Spinach ..	bushel	3	0
Herbs ..	bunch	0	2	Tomatoes ..	lb.	1	0
Leeks ..	bunch	0	3	Turnips ..	bunch	0	4

##### FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples ..	½ sieve	2	0 to 3	Oranges ..	100	4	0 to 6
Cobs, Kent ..	per 100 lbs.	27	6	Peaches ..	per doz.	6	0
Figs ..	dozen	3	0	Pine Apples English ..	lb.	1	0
Grapes ..	lb.	2	6	Plums ..	½ sieve	0	0
Lemons ..	case	10	0	St. Michael Pines ..	each	4	0
Melon ..	each	1	6	Strawberries ..	per lb.	2	0



#### THE FUTURE OF FARMING.

A RECENT inspection of several farms has deepened our conviction that the future of farming will witness considerable curtailment in the size of farms, and a more just proportion of capital and acres than has prevailed hitherto. There can be no question that the capital of many a farmer has been spread over too wide an area to be fully effective, even in the most palmy days of farming, and under the depression it is precisely upon such holdings that we find numerous cases of bankruptcy irrespective of the size of farms. That plurality of holdings was a safe proceeding twenty years ago there can be no question so far as tenants were concerned, but subsequent experience has shown that it was an unwise one on the part of landlords. Straitened means from falling prices induced many a man to "take it out of the land," with certain vague hopes of better times—hopes doomed never to be realised. The land was farmed out, fell upon the landlord's hands exhausted of fertility, foul with weeds, and not unfrequently water-logged. What this means for the landlord is fully realised by the home farmer, falling as it often does to his lot to take up such farms and bring them back into good condition again. A farm which we now have in cultivation, when it first came in hand was so foul that nothing could be sown during the first year, and nearly a thousand pounds was spent in steam cultivation. Then followed drainage, for it was a heavy land farm, most of it "wet," yet it was intersected by plenty of deep ditches, and the surface of all the fields inclined sufficiently to the ditches to render sufficient drainage a simple matter enough, but it must not be forgotten that it had to be paid for. Manure was another heavy item of what may be termed necessary preliminary expenditure, for the land was very poor, so that altogether there was an outlay of some £3000 to clean, drain, manure and crop this farm. Glad were we when it began affording some returns upon our expenditure, and we hope this season to realise a fair margin of profit.

It may be thought that a faithful steward would never suffer the property entrusted to his supervision to fall into such wretched plight, but when land is held under a long lease and the rent is paid regularly as it becomes due, it is by no means an easy matter to interfere with effect. Under rent reductions and modified agreements, yearly tenancies are fast replacing long leases, and it is clearly in the interest of the owners of the land that it should be so. In the interest both of the owner and occupier of land we require a prospective tenant to afford proof of having sufficient capital to farm the land well. Would that we could also apply a preliminary test of his practical knowledge of farming, but that in most instances has to be taken for granted. Industry combined with good sense enables a man to turn money and labour to best account. We had a pleasing example of this in our farm inspection, to which we may call attention here. The tenant of a small compact farm of eighty acres entered upon his holding four years ago at a rent of £80 a year. He found the land so poor and foul that the first year's rent had to be paid out of capital, and as he told us he was much disheartened, and would probably have broken down, but he fortunately has a good wife, a notable woman, who with the proceeds of her dairy and poultry has helped her husband over the difficulties which threatened to overwhelm them. "I



and my wife work hard fourteen hours daily," said he. We had pleasing evidence of the fruits of their industry and dogged perseverance as we went over the farm, and we were able to congratulate him upon having the most flourishing crops we had seen this season. Such a tenant deserves encouragement, and assuredly he shall have it. He wants more land already. By next Michaelmas he will be ready for more, and arrangements will be made to meet his wants from land in hand adjoining his farm. He has been badly treated and naturally complains of it, yet such a tenant is a landlord's best friend, and he must for every reason have due respect and attention accorded him. More than this, it is in the very nature of things that he should be ambitious; be it our study so to meet his demands, that he may see it is for his interest to keep to the estate under our care and not to seek for a second holding upon another estate. That is a thing which frequently happens and which we greatly deplore, for the tenant then has the option of taking live stock from farm to farm, and there is always a feeling of uncertainty about his affairs. If he falls into arrears we can keep no real check upon him, and if possible we avoid letting farms to men already holding land on other estates. Nor is this a matter only affecting the landlord's interest. A farmer with capital to invest may be tempted to hire more land simply from the cheap rate at which it can be had. If our advice were asked, we should certainly inquire if before looking for other holdings the farmer was really doing the best with that which he already had. To such a query the answer often proves unsatisfactory. In reply to our advice to put £5 an acre of more capital into a certain farm we were asked, "Where is the good of putting more money into land that only yields four quarters of Wheat per acre, with corn at such a low price?" We had actually to explain that the sole end and aim of such expenditure was to render the land more fertile, to improve the cultivation of it generally, and consequently to render it more productive. If only we could induce farmers to realise the possibilities of high culture, to see that a moderate area thoroughly well managed is far more profitable than a large one only half done, what a stumbling-block—what a hindrance to progress—should we remove, and how far more hopeful should we feel of the future of farming than we do now!

(To be continued.)

#### WORK ON THE HOME FARM.

As long as is possible without harm to the corn the hoes will be kept briskly at work among it where Thistles and Charlock abound. In some corn badly infested with Charlock we have resorted to pulling it out of the corn rows by hand. We have employed several extra boys and men at this work, for we are bound to do all we can to relieve the land of weeds. The Mangolds are growing freely, and the plants will soon be large enough for thinning. The horse hoes have been at work between the rows of Mangolds; Thistles, and in some parts Couch Grass, being abundant. Swedes have come well in moist soil, and the change to real summer weather will cause them to grow quickly away from the fly. Maize of the large Horse-tooth variety has been sown for the cows, bullocks and pigs. We strongly commend this summer crop to general notice for farmers who want an abundant yield of nutritious green food for live stock at the rate of 20 to 30 tons an acre. We have not yet tried Green Maize as an article of summer diet for sheep, but we have no reason to suppose they will not thrive upon it. Used in moderation it is useful for dairy cows, but they must not be fed with it alone, as it is then liable to impart an unpleasant flavour to the milk. There is still time to raise a crop, and it is certainly worthy of a trial. The land should be rich and in good cultivation in order to do full justice to the Maize plant, which is of rampant growth and requires plenty of food. Haymaking will soon be upon us, and we are having the mowing machines overhauled and put into good working order. Rakes and forks will all be examined, and due care taken that rick cloths, poles, pulleys, and ropes are all ready for the work. Haymaking is critical work, requiring close supervision and great care, then there is no reason why good hay should not be made. In point of fact good hay can always be made except, perhaps, in the extreme west, where rain is more prevalent than in other parts of the country. In a very wet district recourse can be had to the making of silage, but let hay be made wherever it is possible, as it affords us the option either of being used at the farm or being sold. Do not suffer any of the grass to ripen seed, but so arrange the mowing that the last of the grass shall be mowed before seed-ripening is possible. The ewes and lambs have finished the Rye Grass, and they have returned to the home farm to be folded upon Winter Tares by night and to run upon the grass in the park by day. Weaning has already been begun, and we greatly regret to see old ewes

taken from the lambs and sent into the markets to be sold in wretched condition.

#### BATH AND WEST OF ENGLAND SHOW.

THE 109th Exhibition of this Society, held on the Durdham Down, Clifton, Bristol, was a decided success in every respect. Prior to the opening day much rain fell, and as a consequence the exceptional heavy traffic incidental to the collection of such an immense amount of heavy machinery, implements, and stock rendered the principal thoroughfares extremely unfit for traffic. With this exception, nothing was wanting to make a visit to the Show both interesting and instructive to the visitors who flocked to the grounds on each day the Show was open. The total entries in the live stock departments were 969, and of poultry there were 525 entries. About 40 acres of ground were enclosed, and of this agricultural implements occupied 4499 feet run; cattle foods, artificial manures, &c., 740 feet run; seeds 441 feet run; machinery in motion eighty-eight compartments, and open space for hay barns, greenhouses, &c., 2118 square yards, and miscellaneous exhibits 1470 feet run.

The show of Shorthorns, eighty-three in all, was one of the best ever collected by the Society, and included remarkably well-developed animals in the several classes devoted to them. Fewer Devons were shown than anticipated, but there were several fine animals, and the heifers were well represented. The number of Herefords shown was seventy-four, and they were a good all-round lot. Guernseys were also well shown, and the Jerseys were a pretty lot, while the Sussex, though fewer in number than usual, comprised many fine beasts. Sheep of every description were well shown, though fewer in number than at Brighton last year, while the pigs in each class were considered exceptionally good, and the same may be said of the horses generally. Anything like a detailed account of the prizewinners, however, cannot be attempted, and it would require several pages to even briefly describe the numerous exhibits of machinery, implements, &c., all of which are now brought to great perfection, a fact evident enough to all observers visiting this great display.

The examples of ensilage made under varying conditions at Long Ashton, near Bristol, under the advice of Sir John B. Lawes, Bart., naturally attracted much attention from the innumerable agriculturists present, and much useful information must have been disseminated. The aroma arising from the sour "silage" was anything but agreeable, but this does not appear to deter the beasts from eating it readily, and should a wet season be experienced it is to be hoped that many farmers will adopt the system. At present the system is not much favoured in the west of England, where in many cases the farmers are scarcely so "go-ahead" as they ought to be.

A conspicuous exhibit was the grand stand or Royal Museum of seeds, roots, models, grasses, &c., erected by the Messrs. Sutton & Sons, the noted Reading firm of seedsmen. Those who have not previously seen similar exhibits by this and other firms were agreeably surprised at the artistic manner in which the various subjects are grouped, few thinking it possible to render immense heaps of Mangolds, Swedes, and other roots really attractive; while the numerous varieties of dried grasses, all legibly named, with large patches of beautifully green herbage, all serve to complete quite an attractive display. With a season like 1885 to contend with, extra fine samples of roots were scarcely to be expected, but there was no apparent falling off in the size and form either of the popular Sutton's Berkshire Prize Yellow Globe Mangold; Golden Tankard, yellow fleshed Mangold much in demand by the dairy farmers; Sutton's Yellow Intermediate Mangold, a favourite for shallow soils; or the exceptionally hardy Sutton's Champion Swede. In addition to these there was also a large collection of Potatoes, including all the good sorts distributed by this firm of late years.

Messrs. Webb & Sons, Wordsley, Stourbridge, also had a grand stand, this forming a good companion for that just noticed. In addition to extensive heaps of Webbs' Imperial Swede, a variety much in favour with exhibitors, and other equally as popular Swedes and Mangolds, they had a collection of finely grown Potatoes. Messrs. Webb had also sheaves of new kinds of Wheat, Barley, and Oats, as well as older kinds, of which they hold good stock. Grasses for all soils and purposes, including ensilage both dried and in a green state, were also extensively shown, and samples of various seeds, both for the garden and farm, occupied prominent positions on this large and well arranged stand. In addition, there were large groups of Tuberosa Begonias and Gloxinias, the strains being good in both instances.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1886.										
May—June.										
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sunday ..... 30	29.994	56.6	48.9	N.E.	51.6	62.2	41.0	92.6	35.7	—
Monday ..... 31	30.024	58.3	54.0	N.	51.3	69.1	45.4	115.8	39.3	0.016
Tuesday ..... 1	29.847	58.8	57.3	E.	52.5	73.6	53.8	112.9	51.0	0.172
Wednesday ... 2	29.930	61.4	55.6	E.	53.4	72.4	49.1	112.2	46.2	—
Thursday ..... 3	30.109	52.2	49.4	N.E.	54.2	56.7	48.8	76.4	49.2	—
Friday ..... 4	30.186	53.6	49.0	S.E.	53.2	65.8	40.9	116.6	36.3	—
Saturday ..... 5	30.132	52.7	47.9	N.E.	53.4	67.3	40.2	113.4	36.0	—
	30.032	56.2	51.6		52.8	66.7	45.6	105.7	42.0	0.188

#### REMARKS.

30th.—Very hazy till evening, then bright.  
31st.—Cloudy morn, fine bright afternoon, spots of rain in evening.  
1st.—Heavy rain about 10 A.M. with thunder and lightning; cloudy morning; lovely afternoon and evening.  
2nd.—Delightful morning, cloudy after 3 P.M., thunder at 3.50 P.M. and a little rain; fine evening.  
3rd.—Cloudy all day.  
4th.—Fine and bright, but cool.  
5th.—Fine day; thin haze in afternoon, with solar halo from 4 to 8 P.M.  
A fine week. Temperature near the average. The total rainfall this year already exceeds 12 inches.—G. J. SYMONS.





## COMING EVENTS

17	TH	Linnæan Society at 8 P.M. Brentwood Show (two days).
18	F	
19	S	
20	SUN	TRINITY SUNDAY.
21	M	
22	TU	Royal Horticultural Society—Fruit and Floral Committees at 11 A.M.;
23	W	York Floral Fête (three days). [Pelargonium Show.

## PHENOMENA OF VARIATION, WITH SPECIAL REFERENCE TO FERNS.

[A paper read at the Horticultural Club, June 8th, by C. T. Drury, Esq., F.L.S.]

**I**N a paper which I had the honour of reading here last season upon certain newly discovered phenomena of reproduction in Ferns, I confined myself mainly to a description of the various normal and abnormal methods by which they are propagated, and an elucidation of the characteristic differences in these respects between the Filices and the flowering plants. With the view of opening a discussion of somewhat wider interest than the study of Ferns alone could do, I purpose to-night to dwell especially upon the peculiar faculty of variation possessed by Ferns, and the general character of such variation, in order to ascertain from the discussion which I hope will follow whether this faculty is displayed in as great a degree in the other branches of botany which may form the special study of my fellow members. I therefore start with the hypothesis that Ferns are endowed with a greater capacity of sudden variation under natural circumstances than other plants. I say under natural circumstances, because it is chiefly wild sports which I have in view, and not the wonderful differences which careful cultivation and selection are capable of effecting in almost every living thing if only time enough be granted.

The faculty of variation is general throughout organic life, but in the vast majority of cases the individual differences displayed between organisms of the same species are mainly the result of different conditions of growth, and do not involve any material alteration of structural plan. The offspring consequently present the same general appearance as the parent. Here and there, however, through some subtle occult influence, cases present themselves where the offspring is found to display strongly marked characteristics of which not a trace existed in either parent or, so far as can be ascertained, in any of its progenitors. These sudden departures from the normal type (or sports, as they are horticulturally termed) seem frequently to result from some accumulated influence induced by the artificial conditions attendant in cultivation. This is shown by the fact that many flowers under such treatment are liable after a certain time to vary suddenly either in themselves or their progeny, a fact to which we owe the immense number of strongly marked forms of floral beauty now existent.

In Ferns, however, under purely natural conditions—or, at any rate, under conditions as natural as we can obtain in a civilised country—there have been discovered an immense number of forms departing so widely from the normal types among which they were found, and which are so isolated in their occurrence and so entirely unaccompanied by any trace of intermediate aberration that we are forced to the conclusion that they are the direct offspring of spores from perfectly normal plants, notwithstanding which, they, in most

cases, truly transmit their peculiarities generation after generation to their offspring.

What an extraordinarily subtle influence must that be which in either plant or animal can so affect and transform the microscopic germ that the resulting offspring shall not only differ materially from the parent form, but possibly an altogether different type of structure, at once symmetrical and beautiful, shall originate, and be able to transmit henceforth its peculiarities to its offspring. Here, indeed, have we special creations, forming striking exceptions to the general rule of gradual evolution.

To return to my special theme—Ferns. Take for instance the Victoria Lady Fern, and grant the assumption, which cannot be avoided, that it originated from a normal plant. This normal plant we found to consist of fronds formed of a central stipe tapering to a point, and provided with side branches or pinnæ on the same plan and set on at an angle of about 30°; these being again divided on the same principle, the whole forming a feathery frond of lanceolate outline. On the back of every frond there are millions and millions of microscopic spores, which, during the indefinitely long life of the plant, are shed around and blown about in countless myriads year after year, not only from this plant but from thousands like it in the vicinity. Suddenly one, and apparently only one, of these spores yields a plant in which all the divisions, pinnæ, pinnules, and pinulets are not only duplicated but much narrowed and set at about right angles to each other. The outline of the frond is also greatly narrowed, and finally the tips of the pinnæ and the frond itself are many times divided, so as to form heavy tassels. Finally, it is abundantly sporiferous, and every spore is capable of reproducing its structural peculiarities; though, strange to say, the offspring are generally if not always easily distinguishable from the parents by a certain coarseness, the fine cutting of the ultimate division being, as it were, blurred and less sharply defined. On the other hand, I have raised hundreds of this form, and never saw a case of reversion to the normal form. This case of variation is an extreme type, involving as it does not merely a cresting but also an essential variation in plan of structure, a combination of peculiarities which has so far not been discovered in connection with any other family of Ferns, though some few varieties are characterised occasionally by cruciate pinnæ. This Fern was found growing wild by the roadside in Scotland, and though the station was assiduously searched then and later no second example or intermediate form was or has since been discovered there or elsewhere. Another extreme form was A. F.-f. acrocladon, found also by the roadside on a Yorkshire moor. Here the rachis and rachides possess such a tendency to division that the normal feathery nature of the frond is utterly lost, and the plant resembles a number of mossy balls crowning the much-divided stipes. Here, again, no intermediate form was found in the vicinity, and the necessary conclusion is that it originated at one jump, as it were, from the normal form. This case, however, is not so striking as that of A. F.-f. Victoriae, since the ramification of the rachis is a comparatively common form of variation, and is only carried in this instance to an extreme extent. This again yields, I believe, fairly true progeny, in one of which the division is carried to such an extent that the whole plant resembles a ball of velvet.

This power of cresting, in which the normally acute points of the rachis and rachides, of frond, pinnæ, and even of the pinnules become dilated and divided, seems common to all or nearly all of the British Ferns, only one or two species having failed so far to afford instances; and since, as I have said, the more marked departures have been found wild, it becomes a question whether exotic Ferns all over the world will not yield instances of the same phenomenon when sought for by an eye accustomed to the quest; for it is a peculiar fact that until the sight becomes habituated to the search for special features the eye unconsciously is liable to overlook and pass



by the most striking characteristics. Hence a botanist whose specialty is the discovery of new species only would readily detect an altogether new plant, but fail to note that one amongst a crowd of familiar plants possessed unusual features. As an instance of this, I recollect once hunting over a lot of *Scolopendriums* with a good general botanist, and I found no less than seventeen ramose and otherwise abnormal plants among them before he found one, yet in his own element he would point out an uncommon flower on the other side of a field where I could hardly discern a plant at all. To this may be attributed the fact that so few abnormal exotics, and especially tropical Ferns, have been found, though I venture to think the quest is worth while; for let the scientist term them monstrosities if he will, I contend that in many cases the abnormal forms infinitely transcend the normal ones in beauty,† while admitting freely that, on the other hand, many are far more curious than beautiful. Anyone who has seen a grand specimen of *Lastrea cristata*, our nearest approach to a Tree Fern, and splendidly tasselled, must admit that such a cresting on *Dicksonia antarctica* or a fine *Cyathea dealbata* would be simply magnificent, and I am sure that somewhere in the untravelled habitats of these Ferns their crested forms are quietly awaiting their discoverer.

In connection with this power of crestation I would ask, What is the parallel phenomenon in flowering plants? Hardly, I think, the doubling of the flowers, though that suggests itself as a near approach; yet from the fact that the sterility which is usually attendant upon such doubling is associated in the Ferns with the plumose and not the crested varieties, I think the connection should be looked for there; the extremely foliose character of such forms seeming to absorb all the vigour of the plant, so that spores are either altogether or almost absent, precisely as the multiplication of the flower petals seems to affect the seed producing parts of the flower. This idea I only throw out for discussion.

Here again the most marked instances of variation in the plumose direction have been wild finds. Dr. Wills's *Scolopendrium crispum*, for instance, has deeply curled fronds of normal strap-shaped outline, but much wider—over 4 inches in some cases. The Axminster and Horsfall plumose *Athyria* were also found wild: and to cut this part of my paper short, so were the greater part of the abnormal forms in cultivation; though, thanks to the selection of some of our careful cultivators, such as Col. Jones of Clifton and others, the offspring of such finds have been found to develop their characteristic beauties to a far greater extent than the parents, some of Col. Jones's *Polystichums* especially, the result of selection and hybridisation being apparently the ne plus ultra of feathery delicacy.

I have alluded several times to the constancy of such variations, but there are some curious exceptions to this rule, as every Fern-hunter knows to his cost. Many of the most marked and beautiful forms yield common progeny, and also are apt to "sulk" as it is termed, and refuse to produce anything but normal fronds unless grown exactly as they like it. One of my own best finds affords the most remarkable instance of this instability that I know of. In 1884 while in Scotland I found near Kilmarnock a really splendid form of *Lastrea Filix-mas polydactyla*; in fact the most polydactylous form by far which had been seen. The plant had five or six huge fronds, all with beautifully pendulous pinnæ tasselled with as many as twenty divisions. I brought it to London and displayed it with great pride to some of the best judges, who one and all decided that it was a thoroughbred beauty, as it was profusely covered with spores. I carefully gathered some from the best parts of the frond and sowed them. The plant being deciduous the foliage disappeared in the winter, and the following season I watched the rising crown in confident anticipation of a finer and more symmetrical plant than the removal and travelling had per-

mitted it to be the previous season. Judge, then, of my disgust when a common *Filix-mas* was slowly developed without even the simple merit of the normal form, for many of the pinnæ were deformed and depauperate. Later on a frond or two arose with faint signs of division on the apices of the pinnæ; meanwhile the young ones began to arise from the spores, one and all common Male Ferns. Another exactly similar plant found at the same place, but some 20 yards distant, in the succeeding week by a cousin of mine, showed slightly crested pinnæ here and there, and that was all—verdict, a rogue. Still I would not despair, and though this year perhaps it might get over its sulkiness, the spring comes, and slowly rises the shuttlecock-like circle of fronds, all common again except a few deformities; then an odd frond rises, pinnæ slightly crested, then another, and ho! it is heavily tasselled and as beautiful as could be desired.

Meanwhile the seedlings have been developing fronds 4 to 6 inches high, all common with the exception of two, which in the prothallus stage it had transferred to a *Todea superba* frame, these two heavily tasselled from the beginning. I wait a little, and behold here and there generally there are fronds arising among the seedlings which promise not only to equal the parent at its best but even to surpass it. Here is inconstancy with a vengeance, but by no means one of the worst cases, for many a presumed good find has reverted altogether when removed from its birthplace, never displaying its peculiarities again.

That this capacity of sudden variation is not always confined to a single spore is evidenced by the fact that under cultivation instances have been known where a number of exactly similar plants have appeared which have been extremely different from the parent. I have a very dwarf and congested form of *Blechnum Spicant* raised from *B. S. strictum* of Barnes, of which I am informed by the raiser fifteen plants made their appearance, yet no one would credit the parent with such offspring unless on the very best evidence. A still more remarkable case occurred some short time back amongst my own sowings. I sowed spores from a very finely cut form of plumose *Athyrium* (*A. F.-f. plumosum elegans*, *Parsons*) of purely normal outline, yet among a large batch of plants only one resembled the parent; the whole of the rest were heavily crested on tips of frond and pinnæ, most of them symmetrically, but some were irregular. As the sowing was a very special and unmixed one and duly registered, and as, moreover, I have never sowed spores from a plant similar to the resulting ones, I am quite sure of their origin. They all, moreover, possess the plumose character of the parent.

It is a well-known fact that Ferns otherwise normal develop occasionally some local eccentricity which is liable to affect the spores borne in its immediate vicinity. There is, for instance, a very finely crested *Gymnogramma* (*G. Lauchena grandiceps*) raised by Dixon of Hackney, some years ago, and the raiser informed me that upon an ordinary plant of *G. Lauchena* he noticed the tip of one of the pinnæ merely dilated, and as it bore some sori he sowed it, the result being a house full of densely crested plants. It has, therefore, suggested itself to me that many of the varieties found may originate in a similar way, though this of course does not detract one iota from the singular transformation of the germ which must precede the appearance of the transformed plant. It is also manifest from the case of the plumose *Athyrium* just described that the abnormality is by no means necessarily visibly shown in the parent. The most common form of variation is that of crestation, varying from merely division of the tip of the frond to an indefinite ramification of parts forming a ball like *Athyrium F.-f. acrocladon*. The other forms are enumerated, but may be roughly classed under the following heads—Depauperation, the extreme form of which is the reduction of the plants to mere midribs: Dwarfing, implying merely reduction in size: Congestion, where the spaces between the divisions are so reduced that the parts more or less densely overlap and crowd each other:

† Compare the normal *Athyrium* with the best *plumosum*, and the difference is as great as between a common goose feather and that of an ostrich.



Plumation, which is generally accompanied by partial or entire absence of spores, and which consist in a greater foliaceous development, apparently produced at the expense of the spores. Several of these classified eccentricities may be conjoined in one and the same plant, as, for instance, in *L. F.-m. angustata cristata congesta*, where the ordinary lanceolate frond of the Male Fern is narrowed to about an inch in width, is extremely congested and finally crested, this being, I believe, the result of three separate sports; first a natural wild sport—viz., the crested but otherwise normal form, a spore of which gave a narrowed form from which, I believe (though I have not its history), the congested form was raised. Besides these classified forms of varieties there are hundreds which can only be ranked as oddities; such as, for instance, the cornute forms which have arisen in several families, where the midrib is suddenly extended from the surface of the frond, like a Thorn; the proliferous forms, where young plants bud out in the most unexpected places; the serpentine forms, where the ordinary shuttlecock shape is resolved into a sort of Medusa's head, each frond coiling away from the crown and twirling about like a snake. Mr. G. B. Wollaston has a *Polystichum* answering this description exactly. Then there are the marginate forms, where regular ridges are developed on either side of the frond; pociiform and truncate varieties, where the frond suddenly stops and develops a pocket, and so on *ad libitum*.

With regard to proliferation, I should like here to record the fact that in my collection I have recently found a seedling *Lastrea dilatata* bearing a young plant on the first frond evolved from the prothallus. A plant of *Asplenium Adiantum nigrum* var. *microdon* has developed a young plant in the axil of one of the pinnæ. So far as I know proliferation has not been recorded in connection with either of these species.

Having drawn your attention thus to the main forms of variation to which Ferns are subject, and some of the peculiarities attending their occurrence, I will reserve further observations on the subject until after the discussion.

### AMMONIA IN VINERIES.

I FEEL sure Mr. Iggulden has been somewhat disappointed that some other of your able correspondents have not taken up this subject in reply to his valuable and interesting article which appeared in the *Journal* for April 22nd of the present year. For my part I have been eagerly looking for some of our great fruit-growers to give us their experience, but not a word has appeared. Why is this? Is it because the subject is considered of no importance, or is it not sufficiently understood? I am inclined to think the latter is the cause; for although we occasionally see an article devoted to the subject, it never seems to enter the minds of gardeners generally to put the idea into practice. This, I think, is to be regretted; for I am convinced that an ammonia-charged atmosphere is of the greatest benefit in vineries if applied at the proper time and in moderation.

Having been asked to give my experience I will now endeavour to describe how it occurred to me that ammonia was so beneficial to the growth of Vines; but before doing so allow me to remark that I am a young gardener, and feel myself incapable of doing justice to the subject, but I write to gain knowledge, and should I say anything that may be at variance with the views of abler and more experienced men I shall esteem it a favour to be corrected.

In the year 1877 I was placed in a responsible position through the illness and death of my father, who was a thorough hardworking gardener, and one of the old school. Amongst other things I had three vineries under my charge, and was expected to keep up a supply of Grapes from June till February. This, under favourable circumstances, would have been an easy matter; but the Vines were very old, and the houses badly heated, and so constructed that it was impossible to give front ventilation, except through the brick holes in the front wall where the stems of the Vines came through, they being planted in an outside border. Now it so happened that the middle Vine in the early house had been planted deeper, and came through the wall quite 18 inches lower than the rest. For this Vine a narrow inside border had been made, the soil it contained being supported on one side by the front wall, on the other by a brick flue.

During the time the Vines were making growth this small border was kept constantly mulched with fresh horse droppings for the purpose of supplying rich food to the roots, not a thought being given to the ammonia that was arising from the manure and feeding the foliage above; but that such was the case I have not the slightest doubt, for one day while working in the house I was struck by the appearance of the leaves immediately over this border. They were of a much deeper green, and possessed such a thick leathery substance, quite unlike those in any other part of the house. Just before this I had read an article in the *Journal*, I think from the pen of Mr. Luckhurst, which led me to believe it was the ammonia these Vine leaves were inhaling that caused this healthy appearance; and ever since that time I have been quietly following the practice of applying ammonia in the form of liquid manure in all vineries under my charge, and I am happy to say without a single failure or accident.

When I came to my present situation a year ago I found the Vines in an unsatisfactory condition, but being myself very fond of Grape-growing I was not long in setting to work to improve them. The first thing done was to apply a dressing of soot to the borders, and then thoroughly wash it in, for it was plain to me the Vines were being starved; the leaves were small, and of that thin transparent nature which tells its own tale. Moreover, the laterals were much too numerous, in some instances there being as many as five on a spur, and the rods not more than 18 inches apart. How, I ask, was it possible to produce satisfactory Grapes under these conditions?

As soon as the fruit was off we commenced thinning the growths, so as to let in all the light and air possible. Then the borders were looked to, and we found a quantity of roots within a foot of the surface; but they appeared to have no feeding ground, for instead of branching out in all directions they ran through the border like whip thongs. These roots, after being notched at different places with a sharp knife, were laid in a fresh compost, consisting of turfy loam, earth-closet manure, lime rubble, and soot. This being done, the borders, which are inside, received another watering, and about the end of November a good covering of dry Oak leaves was put on, making all safe for the winter.

Very early Grapes not being required, the Vines were not started this season till February, and now comes this important ammonia business again. To induce the Vines to break strongly 3 gallons of liquid manure was sprinkled over the floors and stages of the house twice a week. This had the desired effect, for the Vines broke evenly and fairly strong. The use of the liquid manure was then discontinued till after the Grapes were thinned, then the same quantity was applied every alternate day. I ought to mention that this was done at closing time, when the atmosphere was charged with moisture, there being then much less fear of injury. Now that the Grapes are stoned ammonia is given every day. It may be asked, "What about the smell attending this?" My answer is that I have never had a single complaint respecting its use, and those of your readers who have never tried it would be amazed at the rapid way in which the smell passes off. It will be observed that we apply a small quantity, and that often, and that the Vines enjoy it there is not the slightest doubt, for the improvement in their condition in so short a time is marvellous.

In conclusion I wish to thank Mr. Iggulden for what he has said on the above subject, and he will be glad to know that his teaching is appreciated by—F. H. W.

### LIVERPOOL—VISITORS' GUIDE.

By whatever route Liverpool is approached visitors will not be favourably impressed with the locality as one suitable for gardening operations. The prospects only a few miles out are by no means encouraging, for tall chimneys and factories are abundant. In spite, however, of these and other difficulties visitors will find gardening well done. Liverpool gardeners have long since boasted that they are capable of holding their own, and I think after the neighbourhood has been visited it will be readily admitted that they have good grounds for such an assertion. It is perfectly true that Liverpool cannot boast of having within her suburbs so many lordly establishments as crowd the neighbourhood of some great cities; but there are perhaps more moderate-sized gardens where good culture is carried out than are to be found within the suburbs of any other city. It is not always in the largest establishments that the best gardening is to be found; on the contrary, the reverse is often the case. It is generally from such gardens as these that the plants and fruits are staged at our spring, summer, and autumn exhibitions. These certainly are exceptions to this rule.

It is my intention to name only those gardens that are not a wide distance from the centre of Liverpool, and which are readily reached by rail or bus. It is certain that gardeners will not have the time to pay a visit to the whole of the establishments within a certain radius, and therefore many that are equally well worthy of a visit will naturally have to be left



out of this guide, not because they are less interesting than others that will be named, but because they entail a certain amount of walking, which means loss of time. Gardeners generally have walking enough at home, and consequently they require as little as possible when they are out. I propose grouping the gardens to be visited as much as possible, so that the same ground will not have to be travelled over twice.

The botanic garden joins Wavertree Park, in which the Exhibition is to be held; in fact one or more of the tents as well as a band of musicians will be within the garden. The neighbourhood of the garden is a very bad one, and a worse for gardening purposes could scarcely be found. This was not the case formerly, but now it appears to be within the city, for nothing but bricks and mortar surround it. Gardening, however, is very well done, all these drawbacks considered, and great credit is due to Mr. Richardson, the able curator, and his foreman, Mr. Powell. A splendid idea of what will do in the neighbourhood of a town and what can really be done may be gained, and I advise gardeners to supply themselves with a note-book and pencil, for a few notes of what are thriving may prove of service to them some day, for gardeners never know whether they will be called upon to practise in the vicinity of a town or in the pure air of the country. There is a good collection of herbaceous plants, and plants suitable for furnishing walls. The glass arrangements are also extensive, and the various departments contain some noble specimens. The private houses at the back are an interesting feature of the gardens, and Mr. Richardson will be only too pleased to allow any gardener to inspect these as well as those daily open to the public. The bedding has generally been well done in these gardens, but the season has been much against this portion of the garden decoration, for there is not a sufficiency of frames for the accommodation of the enormous quantity of plants required. Another drawback to the beauty of the establishment is the large numbers of plants that have to be taken out in all weathers for the decoration of the Town Hall and other public buildings. Two Royal visits in a season have made hundreds of plants look seedy, in addition to the large quantities that are only fit for the rubbish heap after they return home from being used in hall-rooms and other positions. The houses could be kept far more attractive if this work could be dispensed with. It may here be stated that Mr. Richardson not only superintends the Botanic Garden, but all the parks and squares come under his charge.

To pass from the Park, the nurseries of Messrs. T. Davies & Co., Wavertree, may be inspected while at the Exhibition or Shipperies. These are reached by taking a tram (for 2d.) from the point where passengers alight for the "Royal Show." Some of the Wavertree trams pass through the main street of the village, and in less than ten minutes from this point the nurseries alluded to can be reached. They are on the right-hand side. There is a large extent of glass, and plants generally are well done both inside and out. Elm Hall, Wavertree, is not very distant and should be visited, for Mr. Cox, who presides over the gardens, is certain to have something at home worth seeing, although he may have many of his best plants at the Show if he succeeds in getting them into form by that date. Mr. Cox is the rising successful exhibitor in this neighbourhood, and if I judge rightly he will well fill in a year or two the premier position rendered vacant by Mr. Wm. Mease. In the past Mr. Cox has been most successful at the shows held by the Liverpool Horticultural Association, and in the future I predict he will be more successful still. I strongly advise gardeners wishing to see Elm Hall to inquire at the nurseries of Messrs. T. Davies & Co. the best route; it can be pointed out to them better than I can detail it here.

From Wavertree station, on the London and North-Western Railway, the train can be taken for Mossley Hill; it is the next or second station from Wavertree, the station being close against Messrs. Davies' nursery. The same place (Mossley Hill) can be reached from Edge Hill station, which has been described, or Lime Street station, if the train is taken from the city. At Mossley Hill turn to the left out of the station and go straight forward for some distance, when the first turning to the right should be taken, which will lead to Wyncote, Allerton, the gardens of C. W. Newman, Esq., where Mr. W. Mease has so successfully practised for many years. These gardens are not what may be termed extensive, but they are well kept, and every portion of ground turned to good account. I may say a little of everything is grown, and all that is taken in hand is well done. No visitor to Liverpool should pass these gardens without paying Mr. Mease a visit. From Wyncote Calderstone can be seen. It is only a few hundred yards away, and a very pleasant half-hour may be spent with Mr. W. Tunnington, who probably knows more about Chrysanthemums than any other man about the neighbourhood. Pines, stove, and greenhouse plants are also well grown at Calderstone.

These visited, the ground must be retraced to Mossley Hill station for Garston Dock station, or the distance to Garston may be walked. While walking to the former station the latter could be reached, and a visit paid to the Garston Vineyard. Garston can be reached either from the central station or from Lime Street. The former route will be referred to again. The Vineyard is easily found when Garston is reached, and anyone will point out the road. The nurseries are about fifteen minutes walk from either of the stations. A whole village of glass will be found in these nurseries, filled with all kinds of flowering and foliage decorative plants to meet the demands of Liverpool for plants and cut flowers. Young Vines and Tea Roses are also largely grown. Orchids, in all stages of development, fill a score or more of houses. The large Madresfield Court Vine which has been written about so many times, fills two large houses if it has not been recently destroyed, which I do not think is the case. Young Ferns are also a speciality. From this point a return to town can be taken from either station, or Woolton and West Derby may be reached from the

Cheshire Lines Committee station at Garston. At both of the places named visitors should break their journey, for there are gardens at both worth seeing. But I shall give this route from the city, starting from the central station, for there are several places of interest that can be reached from this company's lines.

One of two routes can be selected for the purpose we have in view—namely, the train from the station named or by the Prince's Park 'bus, which passes the Washington Hotel in Lime Street. I advise the 'buses, although it takes a little longer, but this will give strangers an opportunity of seeing another portion of the town, and Prince's Road is well worth seeing, towards the end of which a boulevard has been formed. The trees are young, but it certainly reminds one somewhat of the Continent. By this bus Prince's Park can be visited, for passengers can alight close to it. This is not a large park, but it is well laid out, generally some good hedging in it, but the date is too early to see this in its best; nevertheless, it is well worth inspecting. Mr. Mason presides over this park, and the management reflects great credit upon him. A few minutes from this park Sefton Park can be entered. I may here state that from the central station a ticket should be taken for Mersey Road station, the nearest for Sefton Park. By this route it could be passed through to arrive at the point we wish to get at presently. Sefton Park should be inspected, for it is by far the finest in Liverpool. It reminds one very much of Battersea Park, London, but has no hedging. It is beautifully laid out with its broad well-kept roads and winding walks and ornamental rockwork and lake. There is also a very fine collection of ornamental forest trees and deciduous flowering trees and shrubs. Those interested in landscape gardening—and we all are, or should be—should not visit the city without thoroughly inspecting this large beautiful Park.

From this Park can be seen the drive gates of Otterspool, the residence of Sir T. E. Moss, Bart., where the late Mr. Wm. Hinds lived and wrote for many years. Mr. D. Lindsay succeeded Mr. Hinds, and still has the charge of the gardens, which have steadily improved. The drive alone is worth a visit, without mentioning the glass and other portions of the grounds. Those who travel from town to Otterspool station, the one following Mersey Road, on the same line, enter from the station by a small gate, but by this route the drive is missed, which is perhaps the best feature of this place, as far as the grounds are concerned. From the gardens at various points a splendid view of the Mersey is obtained; in fact, it washes the outer edge of the garden, and sometimes carries some portion away with its rushing mighty current. But I am not going to describe this or any of the gardens I intend naming, for I shall only, by so doing, destroy the pleasure of those who visit them.

The train this time must be taken from Otterspool to Cressington, which is the next station. From here the nurseries of Messrs. R. P. Ker and Sons, Aighurth, are reached; they are situated about four minutes walk from the station. This is the home for Crotons. The Croton house is now very handsome. I daresay some of the best plants will find their way to the Show; they certainly ought to do so, for they are wonderfully fine; however, if they do a good number will remain behind that will be worth inspecting. Cyclamens are well and largely grown, also Dracenas—in fact, a general collection of stove and greenhouse plants. It is in good order outside, and the collections of trees and shrubs are large. Gardeners when in this neighbourhood should pay it a visit.—A CITY MAN.

(To be continued.)

## FRUIT STONING.

(Continued from page 459.)

THEN soil exerts a great influence on fruit stoning. Calcareous matter seems essential, and few fruit borders are made without an addition of lime rubble. I have known instances of Cherries falling year after year being rendered fruitful by the addition of a 6-inch thickness of lime rubbish mixed with the top 2 feet of soil, the roots being lifted to within a yard of the stem and laid in the fresh material. This on a peaty loam on the lias formation. There are no doubt soils that contain sufficient lime without any additions, but there are many soils that contain so little lime as to render an addition of lime absolutely essential to a satisfactory crop of fruit. In fact, all soils not calcareous should have addition of not less than a tenth of lime rubble or chalk, and in soils that are of an alluvial or peaty nature a sixth is not too much. In all cases it should be well mixed with the soil to a depth of 2 feet, and if drainage be necessary it may form the upper layer of that in the case of all fruit borders, particularly in the case of Figs, Vines, Peaches, and Nectarines and Cherries. It does not seem so necessary for Pears, Apples, and bush fruit, but for all stone fruits is a necessity of successful practice. Apricots and Plums can hardly be grown without lime, and Cucumbers and Melons are healthier and not so liable to gum, gangrene, and other ills when lime forms a component part of the compost. In some cases I have used as much as a sixth for mixing with the loam for both Cucumbers and Melons, and had some disasters through using lime of the magnesian character as prevails in some parts of Yorkshire. The magnesian limestone may not do much harm on peaty soils, but its causticity remains so long that it must be



used with care. I also found it deleterious to Strawberries and even Gooseberries through using it in perhaps excessive quantities. The quantity used were in excess of a bushel per rod, and yet this quantity acted beneficially on Vine and Peach borders, nor were the effects other than advantageous in the case of Apricots, Plums, and Cherries. I cannot say the same of Pears and Apples; they seemed deteriorated by additions of caustic lime, and contrariwise affected by additions of old mortar rubbish. For all fruit trees that do not stone or even set well I advise a bushel of freshly slaked lime to be applied per rod in the early autumn or spring in dry weather, and point it in as deeply as the roots will allow. Lime has a tendency to sink into the soil, but there is no harm in burying the first applications rather deeply, as the after dressings can be given nearer the surface. These lime dressings may be given every year the first three years, and every other afterwards for a decade, which is as long as I have experience with the same Vines or Peach trees. Figs will take even more, but Figs like it best in the old mortar state, and so do Cucumbers and Melons. Fruit borders from the rich surface dressings and applications of liquid manure contain much humus, and there can hardly be any deficiency of potash, and it may be urged of soda and lime, as the liquid and dung of animals contain those, especially potash, in the urine, yet a dressing of potash has been found beneficial, but I find a peck per rod is sufficient to give of wood ashes, and even less for Peaches. Apricots, Plums, and Cherries have the growth too much accelerated by potash, and the reaction is not reassuring; indeed the action of potash seems to be highly favourable for a time, and then leaves the trees in a worse plight than before its application. Lime, on the other hand, is of great permanence, and it is essential to Figs and Grapes as well as all stone fruit. We can of course get all we want out of liquid manure and decayed leaves, and in the case of Figs and Vines in pots with the run of fermenting beds, but for permanent borders lime is an essential of fruit-forming matter, and necessary to the health and stability of the trees.

Silica is by some means rendered soluble, as it is absorbed, at least enters into the composition of plants, and especially of the stone as well as stems, and is particularly valuable in the growth of Figs, Vines, and Cherries, and Melons never have as much solidity in an aluminous soil as in one of a gritty description. Grit, therefore, in soils deficient of sand should form a component part in the formation of fruit tree borders, particularly for Figs, Vines, and Cherries, a sixth of road scrapings being a suitable quantity for Figs and Cherries; and for Vines, as the soil is usually of a light nature a lesser quantity, or a tenth, will probably suffice. Through lack of inorganic substances failures in fruit stoning and finishing not infrequently arise.

Culturally stoning is a process that requires time and steady supplies of nutriment. If we hurry Vines we get small berries and an indifferent finish; if we force Peaches we bring the fruit down about our ears, and if we will have Figs earlier than usual we must not seek it by forcing hard when the fruit for the purpose of perfecting its seed is stationary, but commence forcing earlier, so as to allow time for the performance of Nature's work. There must be no check—a close vitiated atmosphere one time, and a current of cold air rushing through the house the next, a soddened soil one time, and the roots lacking moisture another, and no encouraging of growth that will necessitate large reductions of foliage at a time; but the temperature must be steady, without great fluctuations or depressions, regularity in the supplies of moisture and nutriment, and a steady progressive growth insured and maintained.

To insure stoning we must avoid overcropping, thinning early and gradually so as to give no glut of nutriment by an excessive thinning, but steadily divert the liberated nutrition into fresh channels, imperceptibly rather than by impulse, and so apportion the crop that we not only effect a satisfactory stoning, but obtain good flesh surrounding a well developed seed. A perfect stone or seed and perfection of flesh, finish, and flavour are inseparable. Ripe wood will stone more fruit than wood not near as ripe; indeed we get more fruit to stone on a branch as thick as a quill than on one as thick as the finger, length for length, but the one is nearly all stone, and the other is marked by a vast proportion of flesh.—G. ABBEY.

#### FINE-FOLIAGED PERENNIALS.

It might be reasonably assumed that we have among hardy perennials as fair a proportion of plants with handsome and ornamental foliage as among those which require the temperature of stove structures, and though the former may perhaps be of a somewhat different aspect, I think it highly probable that in many cases the plants are not sufficiently known, otherwise they would be brought into more general use. There are

hundreds of gardens where the majority of our fine-foliage perennials might be brought into use, and especially those gardens which have a naturally picturesque appearance. Another reason, perhaps, why these plants are not so popular as the fine-foliage plants of our stoves, is that they do not receive the encouragement at our horticultural exhibitions that their merits entitle them to. It not unfrequently happens that large and elaborate rockeries are devoid of vegetation to such an extent as to render the huge stones unseemly and unnatural, whereas by employing some of the plants I shall hereafter name, the whole might be in perfect harmony. Then, again, for isolated positions on the lawn, for damp shady spots, or for the margins of lakes or streams, there are numbers of these plants which would be perfectly happy, and at the same time assist in relieving some previously monotonous outline. One instance more—in a fernery, in some shady grove, or arranged as often is the case on large sloping banks beneath the shade of trees, there is room for some of the more stately Bamboos or Grasses—anything, in fact, that would delight in shade and improve the general appearance of the whole, and who would object in such a spot to see Orchises appear in the spring time, or Lilies during the summer and autumn?

The first genus is the *Acanthus* or Bear's Breech, in which we have many very fine plants. Taken collectively, the group is remarkable for its stateliness, and for their large coriaceous, and, in some species, shiny foliage. The leaves are beautifully recurved, and the singular flower spikes rising to a height of 3 feet, give to the whole a highly graceful and ornamental bearing. All are hardy, and are best suited for isolated positions on the lawn, high up the large rockery, or for the large border. The most distinct are *longifolius*, *latifolius*, *hybridus*, and *spinosissimus*.

We next find in *Bocconia cordata* one of the most handsome among perennials. It rises to a height of about 8 feet or thereabouts, and is admirably adapted for positions on the lawn or for shrubberies. Towards the latter part of the summer it produces terminal panicles of peculiar brownish flowers. It is self-supporting, and makes a most handsome bush, and it may be well to observe it is deciduous. The two genera to which I have referred to are both of easy culture, the former being reproduced from seeds, or from root cuttings, and by division. The latter makes a quantity of stoloniferous growths, and is in consequence of simple culture.

The next plant to come under notice is somewhat rare, especially in anything like large clumps. This is *Cimicifuga racemosa*, as conspicuous and handsome in its long drooping racemes of white feathery-like flowers as it is in its large biternate deeply cut leaves. This lasts in flower for some considerable time, and grows about 4 feet high; the finest specimen I have seen being about the same through. Specimens of this size, however, are extremely rare; still it is of such sterling worth that it should receive every encouragement. It prefers a rich loamy soil and plenty of moisture during the growing and flowering season.

Another genus which contributes species with conspicuous foliage is *Echinops*, all of which are adapted for naturalising, singularly curious being the large globular heads of blue, purple, and white flowers; and following this we find *Eryngium*, which somewhat resemble the former group, at least in some of the species. The latter prefer situations high and dry, for not infrequently do we find them more severely injured in excessively wet winters than in winters which, like the present, have been attended with more than the usual frost. This group is also known by the popular name of Sea Holly, which no doubt it received from its densely spiny leaves. They thrive remarkably well near the seacoast, and are, therefore, suitable ornaments in seaside gardens. They differ somewhat in the habit of growth, *E. amethystinum* being perhaps the most hardy in general. It is truly a handsome plant, and usually attains a height of 3 feet. The leaves are covered with sharp spines, the flower heads and bracts being of a pleasing blue. *E. pandanifolium* hath entire leaves exceedingly spiny at the margins, and of semi-erect habit of growth, from the centre of which the flower stems issue, attaining under favourable conditions 8 feet and even 10 feet high, with branching heads of reddish flowers. It is when seen thus that it claims a first position among ornamental plants; and then we have quite a distinct species in *E. serra*, with broadly lanceolate spiny leaves 2 feet to 3 feet long, nearly prostrate. This is a conspicuous plant for the large rockery, and quite distinct from any other species I know. Others differing from those named are *E. alpinum* and *E. maritimum*, the latter being the plant usually known as the Sea Holly.

The Plantain Lilies or Funkias include some handsome species. All are hardy, and delight in deep rich loam, being allowed to remain undisturbed for years if effect is needed. To give those unacquainted with their beauty some idea of these plants I cannot do better than compare them, and especially the green-leaved kinds, to *Eucharis Sanderiana*, for there is a strong likeness in the foliage of the two plants. Those who know the latter may form some idea of the value of the Funkias as decorative plants by extending their ideas to specimens 3 feet across, which the larger kinds often attain. Some of the best are *Fortunei* and the golden-leaved form *Fortunei aurea*; *Sieboldi* and its variety *aurea marmorata*; *subcordata grandiflora*, which is uncommonly like *Euryclis australasica* in foliage, and not only a valuable plant for ornamentation, but equally so for its flowers, which in a cut state are very serviceable. For the greenhouse it has comparatively few rivals either in beauty or its delightfully fragrant flowers; and, further, I may add that established plants in pots force readily. Thus we have a group of plants truly noble in aspect and highly valuable as flowering plants. There are many other forms smaller in foliage and suited for pot culture for conservatory decoration, but which I will not allude to now.



*Gunnera scabra* and *G. manicata* are giants, and rejoice in abundant supplies of moisture in summer time, and in winter must be kept comparatively dry. Moisture seems the one thing needful to the free and full development of these plants, though I remember one particular instance of a giant specimen of *G. scabra* planted in light sandy soil of only moderate depth, situate on a deep bed of gravel. In winter this plant was protected by a deep covering of bracken and its own giant leaves, and each summer attained a diameter of 12 feet or more, the individual leaves being 4 feet to 5 feet across. It is a plant of giant proportions, and suited for isolated positions on the lawn and in moist shady positions, as it comes from the deep shady ravines of the Andes. Not less gigantic is *G. manicata*, both species being as remarkable in their immense columnar spikes of flowers as in their unique foliage.

In *Helianthus orgyalis* we have the most graceful of its genus. It attains 8 feet or 10 feet high, the stems being thickly furnished with linear lanceolate gracefully recurved leaves. Its flowers, however, are very small, and to this fact may be traced its somewhat sparse distribution. It is, nevertheless, a very distinct and pleasing plant for the large border, for the shrubbery, or for positions on the lawn.

The Cow Parsnip or *Heracleum* have been called the giants of Siberian vegetation, and while probably too coarse for the lawn or the border it is admirably adapted for naturalising in woodlands or semi-wild places, or here and there in large shrubberies. *H. giganteum* is, perhaps, the finest of the genus, growing about 12 feet high and having immense heads of white flowers, and is remarkable for its free growth and development.

We have next a very fine plant in *Senecio japonicus*, also known as *Erythrochaeta palmatifida*. It is quite distinct from all else and grows about 4 feet high, with large distinctly palmate leaves on petioles 3 feet in length, and having lax panicles of golden yellow flowers. The Goat's-beard *Spiraea*, *S. aruncus*, is likewise a very ornamental plant in foliage and flower, the latter composed of innumerable small white flowers in long feathery plumes. It delights in abundant moisture. And to conclude the list of these useful decorative plants I may mention *Symphytum officinale variegatum*, which forms handsome tufts of beautifully variegated leaves. Its flowers are of but little moment, but which is fully compensated for in the rich golden which its leaves assume in spring, and which it retains throughout the summer. Such, then, are a few of these useful subjects which I am sure would find many more admirers than they do now, provided they were brought more to the front so that their beauty may be fully realised.—J. H. E.

### RUSHING INTO PRINT.

UNDER this heading you have permitted "Head Gardener," in your last issue, to make allusions to me in connection with the premium case and the gardener concerned in it. Of the latter it is said that his "identity may be guessed by many." Most likely it will if his actions are reflected in what I and others have written, but not otherwise, and as far as I am concerned not half a dozen persons are wiser than they were before anything was written respecting him. I did not even supply the Editor of the Journal with his name. Your correspondent does not admire my conduct in the affair, neither do I admire unjust or mean actions, and to publicly denounce them can have no terror but to evil doers. My motto has been, "Do to others as you would like to be done by." Your correspondent's objection of the steps I took in this matter leads me to state that judging from the gusto with which he has related what seems to be a paltry incident that occurred twenty years ago, and if true it appears injured no one, he would not hesitate to "pillory" anyone he thought fit.—W. P. R.

[According to our correspondent's standard of probity "Head Gardener" was justified in relating the peculiar "incident" referred to, and which is described on page 419. It is quite true that "W. P. R." did not, as he ought to have done, supply us with the name of the gardener whose action he criticised, though it was known to us before we published his letter, neither did he supply the name of the young man on whose behalf he wrote, and thus relieve us of the necessity of obtaining it from another source. On the question of premiums generally, we fail to see what a gardener has to gain by discharging a young man who performs his duties satisfactorily, and who is at the same time willing to meet his obligations.]

## CHRYSANTHEMUMS AND THEIR CULTURE.

(Continued from page 461.)

### FIRST BREAK.

THERE is no exact time when the plants make their first break, as so much depends upon various causes—viz., variety, time the plants were struck, and the locality in which they are grown; all these tend to alter the date of the "first break." If the plants were rooted about the time advised many will show their first flower during the early part of May and others early in June. Many plants are spoilt at this stage of their growth through want of attention, or in some instances a lack of knowledge to know how to treat them at this important period. The "first break" is caused by the formation of a flower bud in the point of the young growing stem, this bud causes other branches to start from the axils of the leaves below the point where the flower bud formed. On plants of some varieties as many as ten additional growths will

spring from the one stem, and a lesser number from other varieties. These would all in due time grow and produce flowers, but the object of growing the plants to produce large blooms necessitates that the number of growths on each plant be limited to three. The annexed engraving, fig. 89, is intended to illustrate a plant having just made its first break. In the point of the shoot can be seen the flower bud. This and all other shoots which have dotted lines through them are intended to be removed; the three stems which show no dotted lines at the top of the plant just below the flower bud and above those branches which are marked to come out, are to extend their growth, and in time produce flowers. The shoots which are retained should as fast as they grow be carefully tied to the stakes, as represented by fig. 86, p. 460. From this time all side shoots which spring from the main stem must be carefully rubbed out as fast as they appear. The removal of all superfluous



Fig. 89.—First Break.

growths concentrates the whole energies of the plant to the three stems retained until the next break takes place.

### "TAKING" THE BUDS—CROWNS.

If there is one detail in the cultivation of *Chrysanthemums* for large blooms that is of more importance than any other it is "taking the buds." Some persons may think this means pinching off the flower buds, but that is not so; it is the removing the growth shoots which form around the flower bud. These shoots are caused by the formation of the flower bud in the points of the branches. These are taken off, thus throwing the whole strength, so to speak, into the development of the bud retained. Experience with the different varieties will only thoroughly teach beginners in their cultivation the proper time to "take" the buds. If the buds are not retained at the right time for each variety it is useless to expect flowers of first-class quality. It is not a particular day of the month that all buds must be "taken," but the state of each individual plant must be considered when the wished-for bud appears, therefore no hard-and-fast line can be laid down as to the time when every plant shows its proper bud. As a general rule what is known as the crown bud is the one selected for producing the best blooms, but in some instances this particular form of bud will not produce the best results, as a difference of nearly a month must elapse between the "taking" of the correct bud on plants of some sorts and of other varieties. A close observance of the



peculiarities of each variety is necessary before any beginner can succeed satisfactorily. As a general rule plants which are grown by the method of what is termed the "large bloom" style show three buds during the season of growth; what is known as the first break, as represented by fig. 89, is formed from the middle of May to the same time in June. Some varieties which show the first bud among the earliest will send forth a second bud during July, but this cannot be considered other than a freak, owing possibly to the early maturation of the first break. In all cases buds formed at this time must be considered useless and should be removed. Taking the plants in a general way, the second, or what is known to growers as the crown bud, which fig. 90 faithfully represents, is formed at the points of the growing shoots in almost the same way as the first break. When this bud shows at the correct time for each variety and is "taken," then, all other things considered, it will develop into a perfect flower. The third break, which is caused by removing the flower bud from the "crown" break and allowing the branches to extend, produces what is known as the terminal bud. It is so named because it is the apex of growth, no other growths starting after the bud is formed. This is the best bud to select for the



Fig. 90.—Crown Bud.

production of good flowers of some varieties, particularly in the south of England.

As before stated, the time at which the crown bud forms is the all-important point to study. If it forms too early the flowers are coarse in the petals, which much oftener reflex than incurve in the case of incurved varieties. The flowers then are loose and flabby, more like inverted saucers than globe-shaped, which many varieties ought to be. They cover space enough, but are devoid of depth and solidity, the two most essential points in a good flower; and the dark varieties are not nearly so high-coloured as they ought to be. Let me impress upon beginners, then, the mistake which is often made in taking the buds too early. Disappointment is sure to follow, when quality is considered, if the buds are "taken" at too late a stage. This is again a fault, which results in flowers of a neat character, but much too small for high-class company. Some varieties under this treatment do not exhibit their true character when they are small. The locality in which the grower is placed has to be considered, as there is quite a fortnight, and in some cases a month, difference between the seasons of the buds showing in the south and north of England. Crown buds ought to be "taken" earlier in the northern counties than they can be with safety in the south.

Having given my reasons why the flower buds should not be taken too early nor yet too late, I will now endeavour to make

it as clear as I can which is the proper time to select them. The bulk of the Japanese varieties require a longer period to develop from the bud stage to the flower than do the incurved, therefore due thought must be given to this point. For instance, buds "taken" on the 6th of August will not be fully in bloom sooner than some of which buds were selected, say, the 10th of September. Watchfulness and comparison one year with another can only perfect the ambitious cultivator in this point. As a general rule around and south of London crown buds which are set from the 18th of August to the 1st of September are the most likely to produce desirable flowers. Those persons situated farther north will have the buds showing a little later, some perhaps at the same time; while in the extreme north many will not set their buds till quite a month later. There are some varieties—Japanese principally—which require their buds earlier than the date named.

I append a list of the sorts requiring early bud selection:—

Buds "set" about August 10th.—Boule d'Or, Meg Merrilees, Grandiflora, Golden Dragon.

Buds taken about 1st September.—King of Crimsons, Golden Christine, Pink Christine, Peach Christine, Phidias, Queen of England, Golden Empress, Alfred Salter, Sir Stafford Carey, Empress of India, Hero of Stoke Newington, Princess Teck, Madame C. Audiguier, Thunberg.

Again, the flowers of some would be useless if the buds were set earlier than 1st September. These I purpose to class together. Where any particular variety is not named it is intended that the buds of these should be taken during what I propose to call the general time—viz., from the 18th of August to September 1st, and north of London all sorts should be "taken" not later than the time stated if possible. Fig. 90 represents a crown bud just formed. The growth shoots clustering around it should be cut off as denoted by the dotted lines across the shoots, and any other branches forming below those indicated must also be removed when it can be determined that the bud is perfect in form. The best time for this operation is in the early morning, or in the evening when the dew is upon the plants; the shoots at that time are quite brittle. If the stem is held secure in the left hand, and the young growths which are intended for removal be bent suddenly down one at a time, they snap off. After a little practice this method of taking off superfluous shoots is more expeditious than cutting them off with a knife; but if the operation is effected during the middle of the day, when hot and dry, the shoots are quite tough, and the risk of damaging the flower bud is much increased. When the growths are removed the whole energy of the plant is concentrated in the flower bud. As a safeguard against accident in the manipulation of the buds and shoots some growers retain one shoot at the point for a time, until it is seen that the bud is safely swelling to a good size; but this, I think, is wrong, as the growth is divided between the bud and the shoot retained, and the latter must to some extent rob the flower bud of its due amount of sap, but if care is used to perform the removal of the growths no danger need be apprehended. If a doubt exist in the mind that the bud has received injury from insects or otherwise, a day or two is sufficient to determine this. If so, it is useless to retain such a bud as those deformed, as such buds cannot develop into perfect blossoms. Retention of a growth shoot near the bud in this case is advisable; by so doing the number of flowers on each plant is not reduced by the loss sustained by the crown bud.

In the south of England, if the summer be exceptionally hot and dry, the buds must not be "taken" quite so early as the times stated, as some are likely to be deformed in consequence of their early development. In such cases it is much better to take out the bud and continue the leading shoot, which in due time will produce another flower bud. Let it be understood it is only in extreme cases of a very hot summer that this slight deviation of bud-selection should be made, and that not amongst growers north of London.—E. MOLYNEUX.

### SHADE FOR VINES.

Do we not often err in adhering too rigidly to the old notion that Grape Vines and fruit trees under glass should have all the sunshine possible, nothing in the shape of shading being afforded them? I think we do, and have long thought so. When the houses were constructed on a very different principle to those now built—that is to say, with a maximum amount of wood in the shape of rafters and sashes to fit on these, with double the number of sashbars now thought necessary—there was no need to shade the Vines, quite the reverse indeed. Now, however, the case is very different, as glass is in the ascendant, too much so I think, and our houses now get extremely hot in the summer and very much colder in the winter, this arising from the glass being a greater conductor of heat than wood. As a consequence on very hot days we have to ventilate very freely, or



otherwise scorching may and often does occur in spite of the ventilation. The admittance of much air, parched it may be, especially on days such as now being experienced (June 8th) with the wind in the east and a bright sunshine, naturally injuriously increases evaporation of moisture from the foliage, and this is diverted from channels where it is more required. Besides, it is this absence of moisture from the atmosphere and weakening of the growth that encourages the spread of red spider, and when once this gains a good hold it is all up with the prospect of a well-finished crop. Further, Vines badly infested with red spider are so much weakened thereby, that the following season they rarely bear so heavily as they ought otherwise to do.

We find that if we syringe a little thin lime water over the roof of any of the fruit houses that are in hot positions or have a great amount of glass surface, that this materially lowers the temperature directly under, and where it usually gets excessively hot, very much hotter in fact than those walking through a house are aware, and as a consequence little or no air need be given in front, an advantage obvious to all who take more than ordinary interest in such matters. Then, supposing the houses are frequently damped down, a very congenial atmosphere may be created, and if the thermometer under such conditions is run up to 90° during the day, and 5° higher when the house is finally closed, no harm will be done. On the contrary, a healthy and to me at one time surprisingly strong growth is produced. It must be understood that I do not recommend a heavy shading, and a thin limewash syringed over is neither heavy nor permanent, but if applied with a brush it would be too heavy, and a heavy shade at all times is bound to induce a flimsy growth. Should we experience a spell of dull showery weather our thin shading disappears, to be renewed in a few minutes when again needed.

It may be thought that this temporary shading even may interfere with the colouring, more especially of the white Grapes, but not if the latter are given the amount of time they really require to attain perfection. Black varieties may be fully coloured, and yet be sour, but not so the white sorts, and these must have time to mature. A direct sunshine will quickly colour them to a certain extent, but it very frequently disfigures them, as well as impairs the quality. Plenty of light they must have, but a thin shading on the roof and the Vine leaves overhead will not interfere with a perfect finish, always supposing neither shade is not overdone. A moderate canopy of healthy well developed foliage—this being assisted by the temporary shading—is really essential to the perfecting of either black or white Grapes, and I find that the bunches of any sort if unduly exposed are liable to be disfigured by the scalding of the berries, especially during the stoning period. Some of the best finished Muscat of Alexandria I have yet seen were shown at Bath last autumn by Mr. W. Taylor, and I observed that they were grown under abundance of healthy foliage. They were allowed plenty of time to ripen, consequently the colouring was natural and not artificial. Mr. Taylor, as many readers of this Journal are aware, is an expert in the art of ventilating, and therefore has less need to shade his roofs, but even he when at Longleat found it necessary to “do a little to it.” If this is the case with him, how much more so is it advisable in the case of those who are less experienced, or who cannot if they would attend so closely to the ventilation.

Not only is it necessary to shade however slightly modern houses, but it is imperative where cheap glass has been worked in. The latter very often has spots in it as powerful as a good lens, and unless shaded over nothing prevents burning in hot weather. We are bound to shade portions of our Peach range, and last season especially I wished I had freely shaded other portions thought to be safe, as I should then have saved a number of good Peaches from disfigurement. Even Peaches colour well without direct sunshine, the best we had being ripened in a light but not sunny position. A little shade is also beneficial to Melons, Tomatoes, Strawberries, and Figs, while Cucumbers like it on bright days.—W. IGGULDEN.

### NEW PLANTS AT REGENT'S PARK.

As mentioned in our report last week, numerous plants were certificated at the last Regent's Park Exhibition which could not then be noted, brief descriptions are therefore now appended.

*Nephrolepis rufescens tripinnatifida* (J. Veitch & Sons).—A handsome variety, with broad lance-shaped fronds, the pinnæ much cut on the lower side, and the divisions overlapping the others. Very bright green and plume-like in appearance.

*Rhododendron Gloria Mundi* (Veitch).—One of the greenhouse hybrids, with large well-formed bright orange-coloured flowers.

*Asparagus verticillatus* (Veitch).—A strong-growing dark green plant with numerous filiform leaflets round the stems.

*Gloxinia Ivanhoe* (Veitch).—A fine variety. Purple with a white margin and a dotted throat.

*Gymnogramma schizophylla gloriosa* (Veitch).—A grand robust form of this graceful Fern, the fronds freely divided and very proliferous.

*Imantophyllum Distinction* (Veitch).—Very showy, flowers bright orange with a pale centre; of good form.

*Todea grandipinnata* (Veitch).—Something like *T. pellucida*, but with large graceful fronds.

*Pteris tremula foliosa* (Veitch).—A strong-habited variety with tall fronds, the pinnules undulated on the margin; very effective.

*Cattleya Wagneri* (Hugh Low).—A handsome Cattleya. White with a pale golden tinge in the throat of the lip.

*Cattleya Reineckiana* (H. Low & Co.).—Sepals and petals white, lip large and streaked with crimson.

*Oncidium superbiens* (Sander & Co.).—Sepals and lips bright reddish brown, petals pale yellow barred with brown. It is similar to *O. macranthum* in habit, and bears similarly long racemes of flowers.

*Lissochilus lutescens* (B. S. Williams).—A curious little Orchid with small drooping racemes, the sepals and petals white, and the scoop-like lip tinged with yellow.

*Oncidium Kramerii majus* (B. S. Williams).—A very large and brightly coloured form of this strange Orchid.

*Dracena nobilissima* (E. G. Henderson & Son).—A broad-leaved variety, 6 to 8 inches across, dark red.

*Tuberous Begonia Charmer* (Laing & Co.).—Single, bright rosy crimson with a white centre.

*Anthericum liliastrium majus* (T. S. Ware).—A variety with large pure white flowers.

*Paeony Festiva maxima* (T. S. Ware).—A large double variety of the herbaceous type. White with a few crimson streaks. It was also certificated at Kensington on the previous day.



A CIRCULAR just issued reminds the public that the ROYAL HORTICULTURAL SOCIETY'S PROVINCIAL SHOW will be held in the Botanic Gardens and Wavertree Park, Liverpool, from June 29th to July 5th, 1886, inclusive, the prices of admission being 5s. on June 29th, 2s. 6d. on June 30th, and 1s. on July 1st, 2nd, 3rd, and 5th. The Show will be open to Fellows of the Society at 12 noon on June 29th, and to the public at 1 P.M., closing at 7 P.M. On other days the hours of opening and closing will be 10 A.M. and 7 P.M. respectively, except on Saturday, July 3rd, when the hour of closing will be extended to 8 P.M. Numerous varieties of plants, fruits, flowers, vegetables, horticultural implements and appliances, will be exhibited, for which, under various classes, the sum of £1200 will be awarded in prizes. These prizes are open to all competitors who reside in the United Kingdom, but no exhibitor can obtain more than one prize in any class. Valuable awards, ranging from £1 to £20, are offered for Orchids and other species of plants; also for cut flowers, fruit and vegetables. Table decoration, bouquets, and grouped garden produce will greatly augment the attractiveness of the Show, as well as offer substantial benefits to successful competitors. Eminent firms of seedsmen have offered prizes for various kinds of vegetables which are, severally, among their specialities, and a most novel and interesting exhibition will be that of horticulture on board ship, for which medals will be awarded according to merit. On Saturday, July 3rd, and Monday, July 5th, there will be a Cottagers' and Artisans' Show. The exhibits of horticultural and botanical literature, science, and art, will be divided into three sections:—Section A., Home and foreign literature of gardening, embracing instruction (elementary and advanced), models, diagrams, apparatus, &c. Section B., Technical art, such as surveying, plan and architectural drawing. Section C., Botanical and decorative art, such as photographs, and drawings in water colours and oil, of flowers, fruits, trees, and garden landscapes. An incentive to amateurs is offered in a competition for a hand-painted china or terra cotta vase, tile, or plate, the subject being flowers, fruit, or foliage. The awards will be silver-gilt, silver, and bronze medals.

— APPLICATIONS for space for implements, garden structures, tools &c. have been numerous, including space for boilers entered for the boiler contest. All modes of heating, ornamenting, and ventilating conservatories, &c., meteorological instruments, wirework, tenting, &c., will be prominently shown. Certificates will be awarded for any special novelty approved of by the Judges that may be brought under their notice; also one or more gold medals for the most meritorious aggregate displays in any or all of the classes. There will be a conference on the nomenclature of Orchids on Wednesday, June 30th, in which some of the most eminent men of the day will participate. The whole Exhibition will be one of great interest and value, not only to the general public, but also to scientists and practical gardeners; and persons intending to visit the International Exhibition of Navigation, Travelling, Commerce, and Manufacture, should make a point of doing so while the Royal



Horticultural Society's Show is in operation. The main entrance to the Show will be at the junction of Wavertree and Exhibition Roads, while another has been provided for at a point in the Exhibition Road opposite to the main entrance of the "Shipperies," so as to enable visitors to pass freely from one Exhibition to the other. Every requisite will be provided in the way of refreshments for the comfort and enjoyment of visitors, and two military bands will perform each day, that of the Scots Guards having been engaged for the opening and succeeding days—viz., June 29th and 30th. With the exception of the space occupied by one large tent, which will be filled with Roses, and one or two smaller ones, the whole of the botanic gardens, including the lawns, will be available to visitors as a promenade.

— INTENDING exhibitors of plants, &c., are reminded that the entries close on Monday next, the 21st. It is expected that this will prove one of the largest and most important of the exhibitions ever held by the Society. Great progress is being made in laying out the grounds, and many of the hothouses are already erected. The implement exhibition being of great extent only fine weather is required to make it a thorough success. Vans will be in readiness at Edge Hill and other railway stations to convey the plants, &c., to the Exhibition, on giving notice to Mr. Richardson, Curator, Botanic Gardens, Liverpool, when they may be required; and the several leading railway companies have agreed to carry the plants on their return journey at reduced rates. Prompt decision on the part of exhibitors now will greatly facilitate the work of the Managers.

— THE ROYAL BOTANIC SOCIETY'S EVENING FETE will be held on Wednesday, June 30th, 1886, in the Garden, Regent's Park. There will also, as usual, be an exhibition of floral decorations, in which the following will be classes:—1, Floral decorations arranged for a dinner-table 10 by 5; 2, Ditto, ditto, dressed ready for use; 3, Ditto, three groups for ditto, only one kind of flower in each group; 4, Ditto, leaves of hardy plants and Grasses only; 5, Foliage and flowers, suitable for a sideboard; 6, Group of plants, arranged for the decoration of a recess, alcove, or fireplace in a room; 7, Standing basket, furnished with plants suitable for growing in a living-room; 8, Hanging basket, with growing plants; 9, Bridal bouquet; 10, Ballroom bouquet; 11, Group of flowers, &c., stalks in water, and neither tied nor wired; 12, Flowers (either cut or on the plant) which only expand at night. Medals are also offered for the following:—A, Arrangements of flowers, leaves, &c., for personal adornment, such as wreaths, chaplets, and the like, and also for use in dress trimming and ornament. These may be prepared ready for attachment to the dress, or the dress may be exhibited as ornamented. B, Lamps or illuminants for ornamental outdoor or conservatory use. C, Self-contained garden and conservatory fountains. D, Works of art. The Glass Corridor and Museum will be reserved for the exhibition of paintings and carvings of trees, plants, flowers as pictures, or on glass, china, wood, or other material. The prizes vary from £5 to 10s.

— THE TUBEROUS BEGONIAS AT MESSRS. J. LAING & Co.'s NURSERY, FOREST HILL, will shortly be in grand condition. Already there is one large span-roofed house filled with strong plants in flower, representing the superb varieties that have been raised by this firm in recent years; but there are numbers of others advancing to prolong the display, including many very promising novelties which we shall have occasion to notice shortly. Outside considerable space is this year devoted to seedling Begonias, of which there is a stock of 116,000. These have just been planted in beds as in previous seasons, and will in a few weeks' time produce a magnificent display. In other houses are choice collections of useful Orchids, which now constitute one of the features in this nursery, and Caladiums also occupy much space, most of the best varieties being grown.

— THE WATER COLOUR DRAWINGS OF ORCHIDS exhibited by Mr. A. Foord Hughes at the last meeting of the Royal Horticultural Society were tasteful and accurate representations of some choice varieties from Mr. A. H. Smee's collection at Wallington, and were much admired by many visitors. More attention is now being given by artists to these popular plants, which from their varied floral forms and colours would make some charming pictures. Numerous examples of such works can be seen in Miss M. North's gallery at Kew, which combine botanical accuracy with artistic effect.

— A MANUAL of twenty pages, by Mr. Alfred Stead, entitled "HOW TO GROW PEACHES, NECTARINES, AND APRICOTS IN SMALL

GARDENS," has been sent to us. The author has endeavoured to make the subject clear to the ignorant, but we doubt if his endeavour to do so by counting the number of buds to be removed and shoots to retain will be so well understood as he anticipates. We think he is in error in saying the Apricot scale produces a caterpillar; at least, we have not seen any of this kind. The manual is published by Messrs. Hamilton Adams & Co., London. We have another treatise on Peaches, Nectarines, and Pears of a little more substantial character by Mr. Robert Smith, which we will refer to again.

— MR. T. WINKWORTH, The Gardens, Childwall Hall, Liverpool sends us a flower truss and leaves of *HELIOTROPE WHITE LADY*, which are much the finest we have ever seen. The leaves are 7 inches long and  $3\frac{1}{2}$  inches broad, stout, vigorous, and dark green; the flower truss is over 1 foot in diameter, and our correspondent states this is the average size. The flowers are not pure white, being very faintly tinged with colour, but they are extremely fragrant, and the variety evidently succeeds under Mr. Winkworth's management.

— WE have received a copy of the twenty-second thousandth impression of Mr. E. W. Badger's "COTTAGE GARDENING," which has been revised and much enlarged. The mere fact of this useful little work having attained such a circulation is sufficient to commend it to those requiring a sound guide to cottage gardening.

— MR. J. HAM sends us the following note on *ASPARAGUS WITHOUT BEDS*:—"Enclosed is a sample of Asparagus grown without preparation of the ground in any way. It is apparently from a seed carried by the birds and dropped upon a place in my garden, where there is not a foot depth of soil, resting on a very stiff clay subsoil, without drainage, except a gradual natural decline. I have never seen any so fine as it usually is, although others may have still larger. This weighs  $3\frac{1}{2}$  ozs. The root is about five years old." [It is a very fine head indeed; a length of 7 or 8 inches tender.]

— EARLY STRAWBERRIES.—Some plants of King of the Earlies and The Captain Strawberries, which were sent us by Mr. Laxton, have fruited this season, and we find them the earliest of any other varieties with which we are acquainted, earlier even than Pauline, which was grown alongside, by quite a week. We have received fruit of Princess of Prussia from Mr. J. Gibson of Draycot Gardens, which were grown in the open air and which are perfectly ripe. May not this be Princess Frederick William of the "Fruit Manual," an early and highly perfumed Strawberry, good alike for forcing and open air culture?

— HORTICULTURAL CLUB.—The last dinner and conversazione of the season was held on Tuesday, June 8th, under the presidency of Mr. John Lee, Chairman of the Club. A valuable and interesting paper (see page 479) was read by Mr. C. T. Druery, on variation, with especial reference to Ferns. In the after discussion, in which Messrs. Lee, Pearson, Cousens, and others took part, many valuable facts were elicited. The Club has thus brought to a successful issue a series of interesting meetings, in which some of our leading botanists and horticulturists have taken part. It was announced that the annual excursion would take place on July 28th, and would include a visit to Heckfield and Strathfieldsaye.

— AN American horticulturist, writing in *Meehan's Gardeners' Monthly*, has the following note on the culture of *STREPTOSOLEN JAMESonii*:—"I set out some young plants from cuttings in May, in the open air, which soon grew to be bushy plants. I pinched them in, with the idea of making them stronger, which operation we perform on *Bouvardias*, *Chrysanthemums*, *Heliotropes*, *Stevias*, *Eupatoriums*, and many other plants; but I made a mistake. Some of my *Streptosolen* I did not pinch, but left only three or four shoots, which grew quite strong, from half to 3 feet high. They were potted in September, in rich loamy soil, and, on account of their many fibrous roots, soon started to grow again, and in about two weeks were brought to a sunny exposure in the house. With proper repotting and a moist temperature, from 50° to 60°, they develop their beautiful numerous clusters of orange yellow tubular flowers, clusters almost as large as *Hydrangea*, commencing to flower the latter part of January, and continuing to May. They afford a good show of charming blooms, far more perfect than those that have been pinched in. The shoots intended to bloom need the whole season's undisturbed growth. Nature not having provided them with stalks quite strong enough to hold up their exquisite heads, the principal points in their cultivation are to leave a limited number of shoots, and to skilfully aid them by proper supports."



— THE June number of the "Botanical Magazine" gives figures of the following plants—T. 6878, *ANTHURIUM SPLENDIDUM*, is a magnificent Aroid, which was introduced from New Grenada by Mr. W. Bull in 1882. It has been exhibited on several occasions, and is notable for the beautiful metallic green colour of the puckered or bullate leaves. T. 6879 portrays *Grevillea Hookeriana*, a native of the Swan River Territory of South-Western Australia, "growing in dry places along the coast, as near King George's Sound as the Gardener River, and at Doubtful Island bays. It was discovered by Preiss, and collected afterwards by Drummond and others. The specimen figured was raised from seed sent by W. R. Guilfoyle, F.L.S., Director of the Melbourne Botanical Gardens, which flowered in the Royal Gardens in January of the present year." The leaves are pinnate with linear divisions, the perianth yellowish, and bright red styles.

— IN the same work T. 6880 shows *SOPHRONITIS VIOLACEA*, a Brazilian species, which was discovered by Gardner in 1837, "who in a note says that he found it only once, and then as a single small tuft on the trunk of a large tree." It was first described by Lindley, from a specimen flowered in 1847 by Mrs. Cannon of Stratford Green. In 1852 Reichenbach published a much fuller description in the *Linnaea*, from specimens sent by Regnell. He states that it is common on the Organ Mountains. It is a pretty dwarf species, with oval pseudo-bulbs about 1 inch long, and bright rose-coloured flowers  $1\frac{1}{2}$  inch across. Though not so showy as the well-known *S. grandiflora*, it is a charming Orchid, and forms a good companion for that. T. 6881 is *Roydsia suaveolens*, an East Indian plant found on the borders of tropical forests at the base of the Eastern Himalayas, "scenting the air when in flower with a delicious fragrance." The leaves are elliptical, bright green, are persistent, the racemes of flowers being produced from the axils, the numerous stamens form the most conspicuous portion of these being white or yellowish; the calyx being dull coloured, and the corolla absent. T. 6882 is *Tillandsia inflata*, a Brazilian Bromeliad, related to *T. psittacina*, but with overlapping bright rosy bracts and yellow flowers. It was introduced to cultivation by M. Binot in 1880 and first flowered by M. Truffaut at Versailles.

### VINERY WORK IN JUNE.

JUNE, in my opinion and experience, is one of the busiest months in the whole year in vineries. All midseason and late Vines make more wood now than any other time. Bunches and berries on all late varieties require thinning; and stopping, tying, and syringing must have daily attention. Watering at the roots, too, is of the greatest importance now, and those who wish to have their Grapes in the best possible condition when ripe must deal liberally with them. Old borders where the soil is stiff and the drainage not very open will not be very porous, and they will not require so much water as newer borders where the soil is still in lumps and the drainage quite free. A border of this kind can hardly have too much water in dry sunny weather, and once every ten days is not too often to give it a complete soaking. When showers moisten the surface of the ground it is apt to become rather deceptive, as a wet surface does not always indicate a humid soil underneath, and it is this which checks the Vines and ruins the Grapes. We have frequently given our outside Vine borders a thorough watering the day after we had rain, as a well-drained Vine border requires more water than an ordinary piece of the garden where the drainage is only natural and the roots few. Too dry borders are highly injurious, as the wood fails to develop as it should do; the leaves are small, the berries do not gain their proper size, and both the fruit and wood ripen prematurely, and all this not only injures the Vines at the time, but its injurious effects are experienced in years to come. Apart from this, too, sparingly watered Vines soon become infested with insects, and these are enough at any time to spoil the Grapes. The most water is required when the berries have been thinned and until colouring has fairly commenced. It is during that period every part is developing and the demands from the soil are at their greatest. Late Grapes, which now require thinning, should be thinned much more than early ones. The berries of Gros Colman and some other late sorts gain a very large size, and bunches which appear as mere skeletons after thinning swell, under good treatment, until they are complete in all parts.

Black Alicante is an enormous setter. As a rule six berries have to be removed for every one left. Lady Downe's is not so free, and very often there are a great many small berries amongst the large ones in the bunches of this variety. These small ones would never swell and must all be clipped out; but the main reason why late Grapes should be freely thinned is that when the fruit is ripe the berries may not be quite in a solid mass, but sufficiently apart to admit of the air passing through them when they are hanging in a damp atmosphere during the short sunless days of late autumn and winter.

A general cutting away of shoots should never be practised. We have known the wood in some vineries allowed to grow until the whole roof was a mass of shoots, then on a certain day a general cutting back took place, and "daylight" was let in by shortening every shoot to three or four joints beyond the bunch. I have noticed soon after this the Grapes did not swell for a time, and the shoots appeared as if they were unable to start into growth again. Now, whatever you do, avoid this—it is suicidal. If properly treated there should never be occasion to do it, as all the shoots should be stopped long before they cover the roof; and when, by any chance, this happens, thinning and shortening should be done by degrees. In this case we would clear away the top growths one day in a week or so afterwards the bottom ones would be taken, and in another week the middle would be cut back. By this plan the flow of sap would never be checked to any great extent, and the wood and fruit would go on swelling freely. Stopping the shoots, however, should be followed in a systematic way, and should begin as soon as the shoots are long enough to require stopping, and go on until growth ceases, then the results of it are never experienced in any injurious form. All the best Grape-growers have found that to stop the shoots two joints beyond the bunch is a good place to begin, then a fresh growth is produced; it is stopped at every joint until there may be five or six leaves beyond the bunch, when growth is restricted altogether, and while the light is not too much obscured by this length of shoot the fruit has every opportunity of perfecting.

We only make one exception to this rule, and that is when Grapes are ripening during hot weather in June or July we generally allow the young growths to extend a little to afford shelter and shade to the fruit, as almost all Grapes will colour better under a little shade than when exposed fully to a midsummer sun. The Black Hamburgh colours more intensely under shade than when exposed; the same may be said of Gros Colman. Syringing Vines is not such a common practice now as it was at one time; many think it injures the bloom on the fruit, and when dirty water is used or water containing lime it may spot them, but clean water is not injurious, and Vines which are frequently syringed until the fruit begins to colour are generally very free from insects. This is a recommendation for syringing which deserves notice. In warm weather I do not think it is a good plan to syringe the Vines at 3 P.M. or 4 P.M. while the sun is still shining brightly on them, but if they are syringed at 7 P.M. or 8 P.M. it is a cooling bath for them after a hot day, and the dewdrops which are seen hanging from the edges of the leaves in the morning after this are highly conducive to the health of the Vines. Does some youngster ask "Who is going to syringe Vines at 8 P.M.? That is over-time." Well, my man, if it was an impossibility for you to see to it once or twice a week in hot weather I would do it myself. Vineries now require to be ventilated freely. On warm mornings the top lights may be let down a few inches by 7 A.M., and top and bottom lights may be open by 10 A.M. A very close dry atmosphere must be avoided. The surface of the border or floor should be damped several times daily, and the house should be closed in the afternoon to secure a temperature of 85°.—M.

### ODONTOGLOSSUM VEXILLARIUM.

AMONGST the numerous handsome Orchids at the Royal Botanic Society's Show in Regent's Park last week, none attracted so much admiration as the magnificent specimen of *Odontoglossum vexillarium* shown by Mr. James Douglas, gardener to F. Whitbourne, Esq., Great Gearies, Ilford. By the unanimous consent of all the leading orchidists present it was distinguished as the finest specimen in the exhibition, and it is probably the grandest example of this beautiful species that has ever been shown in London. One great point in its favour is that it is a *bona-fide* plant, having been obtained with several others as a small piece ten years ago, and grown on to its present size; but it has never been so fine as the present season, and, as will be seen from the illustration (fig. 91), when sketched at the show named, it was "a mass of flowers" concealing the foliage. It had forty-seven spikes, or a total of 289 flowers, all of good size and form, the variety being a pretty and delicately coloured one. *Odontoglossum vexillarium* is a puzzle to some cultivators, but at Great Gearies the plants succeed admirably, making vigorous growth each season, and always looking well; yet there are no secrets in the cultivation, no complicated system of treatment to describe, but simply the care of an experienced, observant gardener. Mr. Douglas adopts the same method which Mr. B. S. Williams recommends—namely, growing the plants during the winter in the Cattleya house until the flowers are appearing, and they are then removed to the cool house, where the flowers last longer, and in this house the plants remain throughout the summer, one point being most carefully observed at all times—namely, never allowing them to become dry at the roots. This is important; and so is another matter—i.e., keeping the plants free from insects of all kinds, and the closest attention to this will be well repaid.

When first described, in 1867, by Professor Reichenbach, *Odontoglossum vexillarium* was announced with much secrecy, and it was said that neither its native home nor the introducer's name was known, and the person to whom it had been lent was only to take "three looks at it."



Several years later, however, further particulars were obtained, and it appears that the plant was discovered by Bowman, on the "Western slope of the Andes of New Grenada." It was sent home by several collectors, but the plants when received were generally either dead or had suffered too much to recover under cultivation. There has always been much difficulty attending the importation of this *Odontoglossum*, and probably none has proved so disappointing to nurserymen. Mr. Henry Chesterton, however, at last succeeded in sending to Messrs. Veitch and Sons, Chelsea, living plants that endured the ordeal of transmission, and of these some flowered in 1873, from which figures were prepared for the "Botanical Magazine" (t. 6037) and other periodicals. Since then consignments have been occasionally received in good condition, but it re-

when cut and placed in water—indeed, they are quite unsuited for that purpose.—L. C.

#### SAXIFRAGAS.

THE Saxifragas should have a place in all collections of hardy plants. *Saxifraga Wallacei* is an extremely pretty species at this time of the year, and being dwarf it is very useful for borders and rockeries. It may be also used for spring bedding, for generally in an early locality it comes into flower before the beds are required for summer plants. It is pretty with its masses of green foliage and white flowers. It is of easy cultivation, and should be propagated from cuttings. The best time to take



Fig. 91.—*ODONTOGLOSSUM VEXILLARIUM*.

quires careful packing, and good treatment after it reaches the cultivator's hands, or failure results.

This *Odontoglossum* has been termed the Queen of the Orchids, and it merits the title, for when well grown it is a lovely plant, and has an admirable appearance amongst Ferns. The varieties are very numerous, and many of them have received names indicating their colour. Some have bright rosy-tinted flowers, and others are nearly white, the latter being usually the largest. Then in some the one portion of the flower is pale while the other is of a rosy hue termed bicolor; and in still others a yellow blotch is strongly marked in the centre, and these are termed tricolor. Two of the best coloured varieties are Sir Trevor Lawrence's superhum and Mr. B. S. Williams's splendens, both of which are remarkable for the rich rosy crimson hue of the flowers. A distinct form sent out by Mr. W. Bull, under the name of *O. vexillarium rubellum*, is a free-flowering variety, and flowers much later than the others, usually in early autumn, long after the ordinary vexillariums are over. It is a most useful Orchid in all its forms, but its flowers last a very short time

the cuttings is about the end of this month. They should be taken carefully, then inserted into some good soil consisting of equal parts of loam and leaf mould, with a good dash of sand in it. The best way is to place the prepared soil on a border to the thickness of about 3 inches; then insert the cuttings, taking care to firm them well and give a good watering. Place a cloche or bellglass over them, giving some shading on very bright days. They require no air until rooted, which is generally in about a fortnight or three weeks; when rooted, air should be given gradually until properly hardened off, when the bellglass may be taken away. The plants will be then quite large enough for planting out in clumps on the borders or rockeries; or if required for spring bedding they may be left in the cutting beds until October, when they should be planted in their required places.

*Saxifraga Burseriana* is also well worth mentioning, for it is a beautiful species with silvery foliage and lovely white flowers; but it is generally a month later than *S. Wallacei*, but grows to about the same height—viz., from 4 to 6 inches.—AN OUTSIDE FOREMAN.



## ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER.

THIS Society's great Show is open for a week, commencing on the 11th and continuing until Friday the 18th inst. This Society is so well known to be the most prosperous in this country, and at none are such collections of Orchids ever brought together. On the present occasion they are finer than usual, and competent authorities state it is the finest display of these plants ever seen at Manchester. The same view is expressed about the herbaceous and alpine plants. The fruit has also wonderfully improved, both in the quality and number of the exhibits. Great credit is due to Mr. Bruce Findlay, the Council of these Gardens, and all who assist to render these exhibitions successful. The entire management being in the hands of Mr. Findlay, some of the success of this Exhibition is undoubtedly due to the kindly welcome extended to all who visit these Shows.

**ORCHIDS.**—It is indeed questionable if ever before were such a display of Orchids to be seen in bloom at the great Exhibition of this Society. The plants exhibited numbered about 500, and half of these were in competition in the eight classes provided for them. The display of Orchids were indeed lovely, and they extended all round the large exhibition house, which we do not think has ever before been the case on any previous occasion. G. Hardy, Esq., Timperley, may be regarded as the premier competitor, for he succeeded in carrying off four of the leading prizes in six classes. In the class for fifteen exotic Orchids Mr. G. J. Hill, gardener to G. Hardy, Esq., Pickering Lodge, was well ahead with some magnificent plants of *Dendrobium Wardianum* with fifteen spikes, several of the pseudo-bulbs being 4 feet in length and furnished with flowers nearly the whole of that length. *Dendrobium Paxtoni* was another grand specimen, fully 5 feet in height and 4 feet through, and covered with its drooping panicles of yellow flowers. *Lælia purpurata* was grand with over forty of its delicate and gorgeous flowers. *Cattleya Mossiæ* was also very fine, being from 3 to 4 feet through and covered with large fine flowers. *Cattleya Skinnerii* was lovely with about twenty-five spikes of bloom, many of them carrying four and five flowers each. The number of flowers and spikes on *Odontoglossum vexillarium* it was impossible to count, for the plant, which was about 3½ feet in diameter, was covered with its large flowers. A dark form of this beautiful *Odontoglossum* was equally well flowered, and was about 2 feet 6 inches across. A fine healthy plant of *Vanda suavis* had seven large spikes. The fine old *Aerides odoratum majus* had no less than thirty spikes, while *Cattleya Mendeli*, a fine form, had no less than thirty-four flowers. *Cypripedium Lawrenceanum* was a noble specimen with nearly forty flowers, while *C. caudatum roseum* had seven of its curious flowers. *C. Stonei* had five branching spikes, and *C. superbiens* was covered with blooms, being between 2 and 3 feet across. *Dendrobium suavisima* was about 2 feet across, and well bloomed. Some idea of the effect of this collection may be gained from the enormous quantity of flowers and the size of each of the various plants. Mr. J. Cragg, gardener to A. Heine, Esq., Fallowfield, was placed second in this class, and although the plants were good they were poor in comparison with those which gained the premier position. The most striking plants, however, were *Cattleya Mossiæ*, 3 feet in diameter and covered with bloom, and *Dendrobium thysiflorum*. Mr. A. Cole, gardener to Joseph Broome, Esq., Didsbury, gained the remaining award, and staged capital examples of *Odontoglossum crispum* and *Aerides Fieldingi*.

For nine plants, Mr. J. Cragg took the lead with large healthy well-flowered plants. This collection was remarkably good. *Cattleya Mossiæ*, a large panful (made up), 4 feet in diameter, had about 125 flowers; *Cattleya Mendeli*, thirty-six, very good; *Calanthe veratrifolia*, twenty-two spikes, several of them being 4 feet high. *Dendrobium Devonianum* was especially good, being fully 3 feet high and as much through, covered with blooms. *Dendrobium Paxtoni* was also good, being 5 feet high and from 3 to 4 feet through, and well flowered. *Odontoglossum crispum* was 3 feet 6 inches through, and one mass of bloom. *O. Roezlii* was very fine, being nearly 3 feet over and well flowered. *Cypripedium Lawrenceanum* was remarkably well grown, having forty-five flowers. Another form of *Cattleya Mossiæ* with forty flowers completed this beautiful collection. Mr. G. J. Hill was a good second with *Lælia purpurata*, seventeen flowers; *Dendrobium Jamesianum*, well-bloomed, and about 3 feet through; *Cypripedium Parishii* was very handsome, with eleven spikes. A light form of *O. vexillarium* was well bloomed, being 3 feet across; *Cattleya Mossiæ* was about the same size, with plenty of flowers; *Masdevallia Harryana* was also very good. Mr. Elphinstone, gardener to John Heywood, Esq., Stretford, was accorded the remaining prize.

For six plants, Mr. G. J. Hill took the lead, having a grand *Lælia purpurata*, fifteen flowers; *Odontoglossum citrosomum roseum*, with nine large spikes; *O. vexillarium*, twenty-five spikes; *Cattleya Mossiæ*, 2 feet in diameter and well bloomed. *Dendrobium clavatum* was also fine, the flowers being bright yellow. *Dendrobium Wardianum*, a well-flowered plant, completed this collection. Mr. R. Elphinstone was a good and close second with *Lælia purpurata*, with the same number of flowers as in the previous collection; *Cattleya Mendeli*, with twenty-one flowers; *Cattleya citrina*, a large plant on a block, with thirty-one fine flowers; *Odontoglossum caudatum*, with twenty-one spikes; and a well-flowered *Cattleya Mossiæ*, 3 to 4 feet through. Mr. R. Johnston, gardener to T. Shalter, Esq., third, having particularly noteworthy *Mormodes luxatum eburneum*, and a very fine dark-coloured form of *Cattleya Mendeli*.

For ten *bona fide* specimens—made up plants disqualified in this class—Mr. G. J. Hill was again to the fore with grand examples of *Aerides Veitchii*, with three large branching spikes, *Dendrobium crassinode* with twelve well-flowered pseudo-bulbs, *Cypripedium Stonei* three spikes, and a very good plant of *Odontoglossum vexillarium*. Mr. A. Cole was second, and staged most creditable plants, *Cattleya Lawrenceana* with five flowers on one spike, and *Sobralia macrantha* with seven of its beautiful flowers. Mr. J. Cragg was awarded the remaining prize and staged most creditable plants. For three *Vandas* Mr. A. Cole was the only exhibitor, and was deservedly awarded the first prize for *Vanda teres*, a magnificent plant with 100 fully expanded flowers and in good health. Another of the same species with half the number and *V. suavis*, very fine with seven spikes of bloom. For six *Cattleyas* Mr. G. J. Hill was well to the front with a light form of *Cattleya Mossiæ*, *C. Skinnerii*, *C. Mendeli*, and two other dark forms of

*C. Mossiæ*. These plants were about 3 feet in diameter and in grand health. Mr. J. Cragg was placed second, and had in his collection three very creditable plants, although smaller than those in the previous exhibit.

In the nurserymen's class for sixteen plants Mr. James Cypher, Cheltenham, was well first, and staged well-flowered plants of *Cattleya Mendeli grandiflora* 3 feet through, *C. Mossiæ* about the same size, a fine form of *C. Mendeli* with nine flowers, *C. Mossiæ Rothschildiana*, very good with a remarkably large lip; *Odontoglossum citrosomum roseum*, the finest dark lip variety in the Exhibition; *Anguloa Clowesii* with fourteen flowers, *Vanda suavis* with three spikes, *Lælia purpurata* *Brysonia* particularly good, *Epidendrum vitellinum majus*, between 2 and 3 feet through, one mass of blooms, and a good pan of *Cypripedium Lawrenceanum*. Messrs. Heath and Sons, Cheltenham, were placed second, and Mr. H. James, Castle Nursery, West Norwood, third. The second collection contained *Aerides Lobbii*, very good, with eight large spikes; *Aerides virens*, with the same number; a large pan of *Dendrobium Parishii*, and a good specimen of *D. Dearei*, with seven or eight spikes of its pure white flowers. For ten plants Mr. H. James took the lead, followed by Mr. Cypher and Messrs. Heath & Sons in the order named. The first collection comprised *Cypripedium barbatum superbum*, *Masdevallia Harryana*, *Cattleya Mendeli*, a large plant of *Cypripedium Lawrenceanum* with thirty flowers, a dark form of *Odontoglossum vexillarium*, *Cattleya Mossiæ*, and *C. Warneri*, all being in good health and well bloomed. Considering the enormous quantity of Orchids staged both for and not for competition, scarcely a plant amongst the whole could be considered unhealthy, the foliage throughout being green and the plants and flowers perfectly fresh.

**STOVE AND GREENHOUSE PLANTS.**—These, perhaps, were not so numerous or so excellent as we have been in the habit of seeing at this Society's exhibitions in the past. Many of the plants, however, were excellent examples of culture. In the amateurs' class for ten plants in flower Mr. F. Nicholson, gardener to the Earl of Zetland, Upleatham, was well to the front with neat well-grown examples of *Anthurium Schertzerianum*, fine; *Clerodendron Balfourianum*, *Stephanotis floribunda*, very good; *Statisia profusa*, about 4 feet through and profusely flowered; *Allamanda grandiflora*, very fine; *Dracophyllum gracile*, very healthy and fresh; *Aphelexis macrantha purpurea*, good; and *Franciscea calycina major*. Mr. G. Paul, gardener to S. Schloss, Esq., Bowdon, was a close second, and staged grand examples of *Boronia elatior*, well bloomed; a grand *Stephanotis floribunda*, 5 to 6 feet through and full of bloom; a good *Bougainvillea glabra*, and *Azalea* Sir Charles Napier. Mr. Roberts, gardener to A. Nicholson, Esq., third, having a fine *Anthurium Schertzerianum*, *Stephanotis*, and an *Aphelexis*. In the corresponding nurserymen's class for ten plants three collections were staged. Mr. J. Cypher was accorded the premier position with handsome well-grown plants of *Erica Cavendishiana*, 5 feet through and entirely covered with bloom; *Erica depressa*, about the same size, was equally good; *E. tricolor elegans* and *E. affinis* were also superb; *Ixora Williamsi*, about 5 feet high and as much through, was covered with its very large trusses of bloom; *Dracophyllum gracile*, very fine; *Clerodendron Balfourianum*, *Anthurium Schertzerianum*, good; *Azalea Souvenir de Prince Albert*, well flowered, a large plant; *Aphelexis macrantha*, superb; and the same may be said of *Hedera tulipifera*. Mr. J. F. Mould, Pewsey, was placed second, and staged well-grown plants of *Statisia profusa*, *Ixora coccinea*, *Dipladenia profusa*, very fine; and a large well-flowered plant of the old *gloriosa superba*. Mr. H. James received the remaining prize.

**FINE-FOLIAGE PLANTS.**—Considering the foliage plants on the whole they were equal to those of past years, while the collection staged by Mr. W. Nicholson in the amateurs' class for ten plants have rarely if ever been excelled at any exhibition. This collection was well first, and comprised *Croton Warreui*, 7 feet in diameter and perfect in colour; *C. Johannis*, very fine, 6 feet in diameter, colour good; *C. majesticus*, about the same size and in the same excellent condition; *Davallia fijiensis plumosa* 7 feet across, very fine, a perfect example of cultivation; and the same may be said of *Kentia Fosteriana*. *Chamaecyparis humilis*, *Dion edale*, and *Kentia Belmoriana* were also handsome effective plants. A large *Cycas revoluta* and *Gleichenia Mendeli* 5 feet through, fresh and healthy, completed the collection. Mr. C. Roberts was placed second, and also staged large, noble healthy plants of *Cycas circialis*, *Encopalartos villosus*, *Tbrinax elegans*, *Latania borbonica*, and *Croton Johannis*. Third Mr. G. Paul, his best plants being *Anthurium Veitchii*, very good, *Cocos Weddelliana*, *Gleichenia rupestris*, and *G. Mendeli*. Mr. G. Williams, gardener to S. Baerleiu, Esq., Didsbury, was awarded an extra prize in this class. In the nurserymen's class for eight plants Mr. Cypher was well to the fore with large well-grown examples of *Croton Victoria*, *Cycas revoluta*, *Kentia canterburyana*, *Latania borbonica*, *Kentia Fosteriana*, and *Thrinax elegans*; Messrs. H. James and J. F. Mould being the remaining prize-winners in the order named.

**DRACENAS.**—These plants, as usual, were very fine, and Messrs. R. P. Ker & Sons, Aigburth, Liverpool, secured the first position for twelve plants with excellent examples of *D. superba*, *Goldiana*, *Weismanni*, *Gladstoniæ*, *recurva*, *Robinsoniana*, *picta*, and *vivicans*. Mr. H. James was a good second, and also staged noteworthy plants. Mr. J. F. Mould secured the remaining prize, four collections being staged. In the amateurs' class for six plants Mr. A. Cole took the lead with very finely developed plants of *Robinsoniana*, *Baptisti*, *Lindeni*, *Youngii*, *Shepherdii*, and a particularly large plant of *D. Anerleyensis*. Mr. G. Williams was placed second with rather smaller plants; and Mr. G. Kemp, gardener to Mrs. Sykes, Stockport, third with well-furnished healthy plants.

**CROTONS.**—These plants were not up to their usual standard of excellence. The fine examples generally contributed by Messrs. R. P. Ker & Sons were missed. In the nurserymen's class only one exhibitor staged, and the plants, although large and well furnished, were rather deficient in colour. Mr. J. F. Mould, was, however, awarded the first prize. In the corresponding amateurs' class for six plants Mr. A. Cole was placed first with moderate-sized plants of *C. Queen Victoria*, *C. Disraeli*, *C. Prince of Wales*, and *C. Evansianus*, this being the only exhibit.

**PALEMS AND YUCCAS.**—Only two collections were staged for the prizes offered for four plants, and Mr. Williams was deservedly placed first for capital examples of *Kentia australis*, *Cocos Weddelliana*, and *Latania borbonica*. Mr. Roberts secured the second award. For four *Yuccas*, not less than two kinds, Messrs. A. Cole, R. Elphinstone, and G. Kemp were the



successful competitors in the order named, the several exhibits being highly satisfactory.

**ERICAS.**—These plants were not very largely shown, but the first prize collection of Mr. J. Cypher for six plants contained some remarkably well-flowered plants of *E. Cavendishiana*, *E. depressa*, *E. ventricosa hirsuta alba*. In the amateurs' class for the same number of plants Mr. A. Cole took the lead with capital plants, well flowered and healthy, but rather uneven in size. His best were *E. Cavendishiana*, *E. ventricosa coccinea minor*, *E. v. tricolor*, *E. v. alba tincta*, and *E. splendida*. Mr. G. Williams was second with smaller examples, and Mr. J. F. Mould third. Azaleas need no special note, for those staged for the prizes offered were of poor quality.

**FERNS.**—The class for eight stove and greenhouse Ferns was well represented, and some excellent specimens were staged. Mr. G. Paul took the lead with remarkably large plants fully 7 feet through of *Gleichenia Mendelii*, *Gleichenia Speluncæ*, *G. rupestris glauca*, and *G. flabellata*; *Goniophlebium subauriculatum* was a magnificent plant, and also *Dicksonia antarctica*, *Alsophila Williamsi*, and *Cibotium regale*. Mr. Hesketh, gardener to A. Birley, Esq., was a good second, and Mr. W. Plant, gardener to R. P. Gill, Esq., third. In the open class for twelve hardy varieties, Mr. C. Rylance, nurseryman, Aughton, was well to the front with large handsome plants of *Athyrium F.-f. plumosum*, *A. F.-f. Craigi*, *A. F.-f. Fortitæ*, *A. F.-f. corymbiferum*, *A. F.-f. Fieldiæ*, *Lastrea F.-m. cristata angustata*, *L. F.-m. grandiceps*, *Polystichum proliferum*, and *Athyrium F.-f. Vernoniæ*. Messrs. W. & J. Birkenhead, Sale, Manchester, were second with a superb collection of Ferns. Amongst the most striking were *Osmunda regalis cristata*, *Adiantum pedatum*, good; and *Polystichum angulare plumosum*. Mr. J. Hesketh was placed third, and also staged good plants, having very fine *Athyrium F.-f. Fieldiæ* and *A. F.-f. Craigi*. In the amateurs' class for the same number of plants, Mr. T. Tyldesley, Worsley, was a good first with good examples of *Athyrium F.-f. todeoides*, *Athyrium F.-f. acrocladon*, *Lastrea F.-m. grandiceps*, and others, the same as named in the open class. Mr. Broadman, gardener to Mrs. Hodgkinson, Bowden, was a close second, and Mr. F. W. Stansfield, Sale, third.

**GLOXINIAS.**—On the whole these were good. The plants were not large, but fresh and profusely flowered. For ten plants Mr. G. Worthington, gardener to A. Ward, Esq., Didsbury, was first; and Mr. J. Eden, gardener to Mrs. C. Sergeant, Sale, second; these being scarcely so large as the first prize collection.

**CLEMATISES.**—These plants were not well represented in the class provided for them, and only one collection was staged by Mr. Bennett, gardener to T. Dickens, Esq., Higher Broughton. This collection was well grown and profusely flowered, and well deserved the first prize accorded to them.

**CALCEOLARIAS.**—It is very seldom that finer or better-grown specimens are staged than the first prize collection staged by Mr. R. Elphinstone in the class for eight plants. The plants were from 2 to 3 feet through them, and did not exceed 18 inches in height. Second Mr. T. Grosvenor, gardener to A. W. Bradley, Esq., Congleton. Third Mr. G. Worthington, gardener to Z. A. Ward, Esq., Didsbury.

**NEPENTHES AND SARRACENIAS.**—These were remarkably fine, and the competition very good in the two classes devoted to these plants. For ten plants in the open class Mr. H. James was first with a capital assortment, followed by Mr. A. J. A. Bruce, Chorlton; and Mr. J. F. Mould, who staged healthy but rather small plants. In the amateurs' class for the best collection Mr. A. Cole was well to the fore with the finest collection in the Exhibition, and comprised grand plants of *Nepenthes Broomiana* with large dark patches, *N. Hookeri*, *N. Henryana*, *N. Mastersiana*, very fine; *Cephalotus follicularis* was very fine, so also were *Sarracenia Swartziana*, *S. Chelsoni* very good, *S. illustrata*, *S. flava*, *S. maxima*, and *S. Mitchelliana*. Mr. J. Morton, gardener to J. Feides, Esq., second with a very good collection, but smaller than the preceding.

**PELARGONIUMS.**—For eight show varieties Mr. C. Rylance was the only exhibitor, and staged very fresh, large, neatly trained plants of Prince Leopold, Madame Hilliard, Kingston Beauty, Edward Perkins, Duke of Edinburgh, Queen Bess, and Venus. Mr. Rylance was the only exhibitor in the corresponding class for eight fancy varieties. These plants were remarkably good, being very fresh. The best were Duke of Edinburgh, Exquisite, Evening Star, Helen Beck, Sarah Turner, and Barbet.

**ROSES IN POTS.**—In the nurserymen's class for thirty plants in any size pots, including standards arranged in a group, Messrs. Paul & Son, Cheshunt, secured the premier position with a number of standards arranged in the centre, and dwarfs round them, with a groundwork of *Adiantum cuneatum*. The effect of this arrangement was all that could be desired. The standards had even-sized heads, and comprised the following:—Alfred Colomb, Niphetos, Innocente Pirola, Celine Forestier, Madame Cusin, Anna Ollivier, Catherine Mermet, Centifolia Rosea, and La France. The best of the dwarfs were Madame Victor Verdier, Duke of Teck, Souvenir d'un Ami, Benoit Comte, very bright; Madame Lacharme, Etoile de Lyon, François Levet, Souvenir de Thérèse Levet, and Alba Rosea. Mr. J. F. Mould was placed second with a very creditable collection. For twenty plants in pots not more than 9 inches in diameter Messrs. Paul & Son, Old Nurseries, Cheshunt, secured the first award, and Mr. J. Harley, nurseryman, Stockport, the second, both staging well-flowered fresh examples. For six plants (amateurs) J. Brown, Esq., Heaton Mersey, was a capital first, and staged fine plants of La France, Paul Ricaut, Madame Lacharme, and Madame Willermoz; second Mr. Bennett, gardener to T. Dickens, Esq.; and third Mr. R. Elphinstone, both showing well. Mr. Bennett was awarded an extra prize for a group of Roses not for competition.

**PANSIES AND VIOLAS.**—The pots of these were particularly fine this year, and occupied nearly the whole side of one of the large tents. In the six classes devoted to them the competition was very good, and in many instances very close. In the open class for twenty fancy varieties Mr. S. Robinson, Sale, took the lead with a capital lot, followed closely by Messrs. E. Mellor and J. Heywood. For the same number of Pansies Messrs. E. Mellor and J. Heywood again took the lead in the order named. For twenty Violas, Mr. John Heywood, nurseryman, was first, Mr. J. Mellor, Didsbury, second, and Eliza Mellor third. In the amateurs' class for six pots Mr. G. Wilkes took the lead. For six Fancies Messrs. G. Wilkes, gardener to S. Lord, Esq., and Mr. J. Eden were the prizetakers. For six Violas Mr. W. Rose, gardener to D. McClure, Esq., Heaton Mersey, first with fine pots, second Mr. G. Wilkes, and third Mr. J. Eden.

**HERBACEOUS AND ALPINE PLANTS.**—These have never before been staged in such large numbers or in such admirable condition. With the Orchids they certainly were the great features of the Exhibition. If the whole of these plants had been grouped together in one of the large tents they would have more than filled it. In the nurserymen's class for sixty herbaceous and bulbous plants only one exhibitor staged plants—namely, Messrs. James Dickson & Sons, Newton Nurseries, Chester, for which the first award was made. This collection was the admiration of all, and consisted of large well-developed plants of *Gladiolus Ardens*, pure white, rosy spots, very fine; *Blushing Bride*, another fine form; *The Bride* was also well done; *Pæonia sinensis Virginie*, P. s. Paganini, P. Pottsi fl. pl., P. s. odorata were all good and well flowered. *Delphinium Mrs. Mary Russell* and *D. Wilsoni* were attractive and showy. *Liliums* were very good, especially *L. longifolium*, *L. giganteum*, *L. testaceum*, *L. Browni*, *L. Harrisii*, *L. davuricum grandiflorum*, *L. tigrinum*, and *L. caudatum*. Carnations *Gloire de Nancy* and the old *Crimson Clove* were striking, while *Ploxes Mrs. Hunter* and *Mrs. James Ross* were very effective. *Campanulas* were good, especially such as *C. azurea*, *C. Van Houttei*, and *C. persicifolia fl.-pl.*, *Lupinus polyphyllus albus* and its light blue form were most striking. *Anthericum liliastrium* was very good, and also several German Iris. *Dianthus magnificus* was particularly fine, and the same may be said of *Centaurea rubra* and *Pyrethrum Madame Baltet*. In the corresponding class for an unlimited collection of plants the same exhibitor again secured the highest honours. There was no competition in this class, but the group under notice could not well have been excelled. It contained no less than 100 different varieties, and the whole were healthy, in full flower, and most effectively arranged. These two groups were arranged in the large tent on the ground opposite each other, and were undoubtedly the most attractive feature of this tent. In the same division of the schedule, Messrs. F. W. & H. Stansfield, nurserymen, Sale, were well to the front for forty Alpines in or out of flower. The collection was neat and very effective. Mr. James Mellor, Didsbury, was second, and Messrs. Paul & Son, Cheshunt, third; Messrs. James Dickson & Sons being awarded an extra prize for their collection in this class. At first sight this collection appeared the most showy, but upon examination it could readily be seen that the plants had been somewhat unduly forced or retarded too long. The four collections were, however, wonderfully fine. In the amateurs' class for thirty herbaceous and bulbous plants, Mr. W. Plant was well ahead with a grand assortment of well-grown plants. In this collection it may be noticed the clumps of plants were naturally grown. For instance, the pan of *Saxifraga pyramidalis* had not had flowering crowns only selected in making up the specimens, as was the case in others. Some of the most noteworthy plants in this collection were *Spiræa Aruncus*, *Spiræa palmata* with forty-three flowers (very fine), *Anthericum liliastrium*, *Aquilegia corymbosa*, *Cypripedium spectabile*, *Erigeron speciosus*, *Centaurea montana rubra*, *Phlox grandis*, *Phlox Countess of Horn*. Mr. A. Cole was a good second, and Mr. T. Dickens, gardener to H. Bennett, Esq., Higher Broughton, a good third. For thirty Alpine plants, Mr. A. Cole took the lead with a choice and well-grown collection; Mr. E. Wright second, and Mr. W. Plant the remaining award. For twelve plants, Mr. A. Cole was again first, Mr. R. Tyldesley second, and Mr. E. Wright third.

**CUT FLOWERS.**—These were not numerous, and consisted entirely of Roses, which were very praiseworthy considering the time of the year. In the amateurs' class for twelve Tea varieties T. B. Hall, Esq., Rock Ferry, was deservedly placed first with a stand of grand well developed blooms of *Alba Rosea*, *Niphetos*, *Madame Margottin*, *Souvenir d'un Ami*, *Madame Willermoz*, *Innocente Pirola*, *Anna Ollivier*, *Francisca Kruger*, and *Madame Cusin*. For eighteen Tea blooms in the nurserymen's class Messrs. G. Paul and Son were placed first, this being the only exhibit. This collection contained good blooms of *Maréchal Niel*, *Niphetos*, *Souvenir d'un Ami*, *Comtesse de Nadaillac*, *Alba Rosea*, and *Francisca Kruger*, very fine. For twelve blooms, others than Tea kind, Mr. J. Grier, gardener to J. Brown Esq., was the only exhibitor who staged very creditable blooms, to which the first prize was accorded.

**FRUIT.**—The display of fruit was good considering the season, and the exhibits were not only much more numerous but of better quality than on past occasions. For a collection of eight dishes, distinct kinds, Mr. G. T. Miles, gardener to Earl of Carrington, Wycombe Abbey, was awarded the post of honour. This collection contained excellent examples of Foster's Seedling and Black Hamburgh Grapes, a Queen Pine, Longleaf Perfection Melon, good; Stirling Castle Peaches, Lord Napier Nectarines, large and splendidly coloured; Black Caucasian Cherries, and Dr. Morie Strawberries, very fair. Mr. J. McIndoe, gardener to Sir J. W. Pease, Bart., Hutton Hall, a good second, with Best of All Melon, Muscat of Alexandria Grapes, very good for the time of year; fair Black Hamburghs, good Barrington Peaches, and Brown Turkey Figs. Mr. R. Davies, gardener to Hon. Mrs. Meynel Ingram, Temple Newsham, the remaining prize, and had good Queen Pine, Black Hamburgh Grapes, and La Grosse Sucrée Strawberries. For two bunches of black Grapes several competitors staged excellent fruit. Mr. J. Hollingsworth, gardener to J. F. Campbell, Esq., Woodseat, Uttoxeter, was placed first with two perfect bunches as regards colour and size of berry, the bunches being smaller than the second prize exhibit, contributed by Mr. J. Lowden, gardener to T. Barnes, Esq., The Quinta, Chirk. These bunches were large and the berries good, but the points of the bunches were a little deficient in colour. Mr. J. McIndoe received the remaining award with moderate sized bunches well finished, but the berries were under-sized. For two bunches of white Grapes Mr. G. T. Miles took the lead with capital examples of Buckland Sweetwater; Mr. J. Breese, gardener to Mrs. Ackers, Congleton, second with Duke of Buccleuch; and W. Bretherton, Esq., Euxton, Chorley, third with Foster's Seedling. For two Pines Mr. H. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, Derby, and Mr. J. McIndoe were the prizetakers, being awarded second and third, the first prize being withheld. The fruit in the corresponding class for one dish was very poor. For one dish of Peaches the competition was very good, and some excellent well-coloured fruit was staged. Mr. W. Elphinstone, gardener to E. M. Mundy, Esq., Shipley Hall, Derby, was placed first with very fine fruit of Royal George, Mr. J. Wallis, Keele Hall, second with Hale's Early, and Mr. G. T. Miles third. For one dish of Nectarines the last named exhibitor was placed first with a grand dish of Lord Napier. Mr. J. Bannerman, gardener



to Lord Bagot, second with the same variety, and Mr. McIndoe third, also staging the same. For one scarlet-fleshed Melon a good number of fruit were exhibited. Mr. G. T. Miles was first with a handsome fruit of Scarlet Hybrid. Mr. McIndoe followed with Scarlet Premier, and Mr. J. Hare, gardener to R. H. C. Neville, Esq., Grantham, third with a seedling. For one green-fleshed kind an equal number of fruits were staged. Mr. G. T. Miles was successful with Burghley Pet, Mr. Hare second with Dell's Hybrid, and Mr. McIndoe third with Best of All. For one dish of Cherries some really fine fruit was staged. Mr. Hare took the lead with Black Tartarian, followed by Mr. Miles with Elton. For one dish of Strawberries some very large fine fruit was staged. Mr. P. Paine, gardener to Captain Dixon, Chelford, was deservedly placed first with handsome large fruit of President. Mr. R. Davies second with La Grosse Sucrée, and Mr. Miles third with Sir Joseph Paxton. Strawberries in pots were wonderfully fine, especially the twelve pots staged by Mr. G. Malcolm, gardener to J. Tomkinson, Esq., the variety being Cambrian, and most of the plants carried over twenty large fruits, some of them from twenty-five to thirty. Mr. R. Davies was placed second with a creditable collection, and Mr. W. B. Upjohn, gardener to the Earl of Ellesmere, Worsley Hall, third.

**MISCELLANEOUS EXHIBITS.**—These were very numerous, and added materially to the beauty of the Exhibition. In the large exhibition house Mr. B. S. Williams contributed a very large collection of decorative, flowering, and foliage, including many Orchids in small pots amongst the former. This was a very striking and effective group of plants. Messrs. Sander and Co. contributed a collection of various Orchids in flower in from 5 to 7-inch pots, effectively arranged with *Adiantum cuneatum*. The Horticultural Company (John Cowan), Garston, Liverpool, contributed a similar group, but Dendrobiums predominated, while Cattleyas and *Odontoglossums* were the leading feature of the former group. Messrs. R. P. Ker & Sons staged a choice collection of Crotons, *Dracaenas*, interspersed with Palms and Ferns and small decorative flowering plants. Messrs. W. & J. Birkenhead added to the Exhibition by a collection of hardy and exotic Ferns in good condition and variety. Messrs. W. Cutbush & Sons, Highgate, London, had a very large collection of *Ericas*, *Pimeleas*, and other hard-wooded plants, with Palms, Ferns, and other foliage plants freely intermixed. Messrs. R. Smith & Co., St. John's, Worcester, staged Clematis, large trained plants, amongst them being their new bedding variety, which appears to produce both single and double flowers. This is named Beauty of Worcester. The most effective and interesting portion of this group being a large number of Clematis in 4-inch pots, producing one or two large flowers each, and not more than 1 foot to 18 inches high. Mr. B. S. Williams also staged two fruits of his new Melon Harefield Grove, which has a good appearance, and resembles Cox's Golden Gem. Messrs. Dickson, Brown, & Tait staged a large fruit of a Melon named Penrhyn Seedling, which received a certificate at this Society's Show last year. It is a large fruit, said to weigh from 4 to 9 lbs., and to be ten days earlier than Cox's Golden Gem, which is one of its parents. Both the flavour and appearance are good, and the Judges awarded it a first-class certificate. Mr. B. S. Williams also staged a dish of fine fruit of his new Tomato Harefield Golden Gem. Mr. S. Robinson, florist, Sale, contributed large boxes of *Anthericum liliastrum*, and Mrs. Eliza Mellor a collection of alpiners; Messrs. J. Waterer & Sons a large collection of *Acers* and *Rhododendrons*, also Golden Queen Hollies, but these were arranged at the entrance of the tents; Mr. J. Hcoley, Edgely Road, Stockport, contributed a large collection of Hollies, Conifers, and *Rhododendrons*. The two groups to the entrance of the large tent from this firm were very effective. Messrs. Backhouse & Sons of York added wonderfully to the interest of the tent in which the alpiners were arranged by a large, varied, and interesting collection of these plants, and for which the Society's silver medal was deservedly awarded. Mr. G. W. Yates, Eaton Norris, Manchester, also staged effective groups of *Rhododendrons*.

### STRAWBERRIES AFTER FORCING.

STRAWBERRY forcing is now over. As a rule the plants are turned out in frames or into the open air after all the fruit has been gathered from them, and they often remain until they are covered with insects, which take possession of other plants, and mischief follows. It is generally intended to do something with the Strawberry plants—plant them out to fruit in the autumn or to secure early runners from them—but they are more often neglected and allowed to become so dry at the root as to become a pest as suggested, then they are thrown away. I am not in favour of retaining Strawberry plants for any purpose. I have tried the planting out with various objects in view, but with no advantage. I have also seen large quantities planted out, but never learned of satisfactory results. Plants which fruit again in autumn are few, and as for supplying early runners, any good plantation will do this as early as they are wanted. As soon as our Strawberry plants have given up their crop they are at once thrown away, and the space they occupied, as well as the pots they were in, are filled with more profitable crops than the old plants. We secure our earliest runners from plantations in the kitchen garden from the middle to the end of June; the plants have then four months in which to grow and mature, and they are equally as good and satisfactory as any from old pot plants.—A GARDENER.

### ARAUCARIA IMBRICATA.

In my garden there is an *Araucaria* which has been planted about twenty years. It is about 20 feet high, 15 feet bough from bough, and grown very evenly from top to bottom; but what I believe is not a common thing is that it is bearing "cones" or seed. I enclose you photo of the tree, but as it is only taken by an amateur it is not very good. Any information you can give me in the matter I should be glad to receive. The tree can be seen at any time at Woodlands, Black Fen, near Eltham, Kent.—W. P. SANDERSON.

[We are obliged for the photo, but a much finer specimen, from

Veitch's "Manual of the Coniferae," was represented in our columns in 1881, page 171, volume ix., New Series. See answer to a correspondent on another page.]

### FORCING VIOLETS.

FORCING, though a term sometimes applied to Violets, is hardly applicable, as with a proper preparation and treatment of the plants bloom can hardly fail to be forthcoming in due season, or from September to April, or a month earlier or later according to the season or variety. We have gathered Violet flowers in every month of the year, but they are not of so much account after Pinks, Cloves, and other Carnations with Roses become plentiful, and to have Violets in season, or from September to April inclusive, is one of their greatest charms—viz., their great continuance, value being estimated by what is liked best and enjoyed longest. Violets yield to no other flower in that respect, and meet the requirements of all classes.

To force Violets it is essential that they be grown as advised for those in frames, and that they be established in frames, pits, or pots. If in pits there is no difficulty in keeping up a supply of flowers with a number of plants adequate to the demand for flowers, and the means of affording heat so as to insure flowers independent of the weather. A high temperature is not necessary; air is highly important, in fact the most important element in Violet culture, and moisture is equally essential. Air, moisture, and sufficient warmth to insure the development of the blooms is all that is required, with all the light practicable. Air constantly, and a temperature of 50° artificially, is ample. A higher temperature from sun heat will not matter provided it be accompanied by an increase of ventilation, and at night 40° to 45°. Higher temperatures elongate the leaves and flower stems unduly, and give them a weak, attenuated, and unpleasant appearance.

Plants in pots are easily brought into flower placed on shelves, or preferably on a damp base, as that of cocoa-nut refuse or ashes kept wet, and well up to the glass in a light airy house in which a temperature of 45° to 50° by artificial means is secured, and advancing to 65° from sun heat with abundance of air. A succession of fresh plants introduced at intervals in accordance with the demand of individual establishments will insure an unbroken supply, the plants being drafted from cold frames protected in severe weather, so as to be always available for the purpose at fortnightly intervals, or as required.

Everyone has not command of a greenhouse or forcing house. The best way to have Violets in such cases is to grow the plants in frames, they having been grown for the purpose in the open ground in summer. A warm sunny situation should be chosen for the frame, and a foundation of faggots formed for it to stand on, so that the heat of the materials employed may pass under the bed by the faggots, the heat being afforded by fermenting materials in the form of linings, in which way it can be added to or renewed according to the state of the weather. The faggots should form a base cross-wise to the frame of about 2 feet high, and the exact size or a little more than the frame. A layer of rather rough spent litter should be placed on the faggots about 6 inches thick, and then the frame on that. Put in a layer of leaf soil or well decayed manure 3 inches thick, and then the compost for packing the plants as indicated in the article on "Violets in Frames." The plants should be put in their forcing quarters by the end of September, and kept duly supplied with water. The lights need not be used until frost, and by the time growth is stayed naturally artificial means must be set to work to maintain it. This may occur early in November, but by the middle of that month sufficient tree leaves with a fourth part of stable litter should be mixed and placed loosely all round the bed and to the height of the base of the frame, and these can be made firm and added to as the heat becomes necessary, there being no difficulty in regulating it to the greatest nicety by turning one or more of the linings, and adding fresh material at any time, and the warmth will pass into the faggots, diffusing itself through them, and being absorbed by the bed over them. The Violet roots soon feel the warmth, the impetus given them is transmitted to the flower buds and flowers, and the flowers come unusually fine and over a lengthened period. Air must be admitted freely on all favourable occasions, and a little air admitted constantly by tilting the lights at back will allow of superfluous moisture escaping. Avoid cold currents of air, as it chills and stunts the expanding flowers, but a close atmosphere must be avoided, and though protection over the lights will be necessary in very severe weather it must not remain on longer than is absolutely necessary. Sharp frosts, sudden heats, close confinement, and inattention ruin Violets.

The best varieties for forcing are the Neapolitan varieties:—New York, Marie Louise, De Parme, White Neapolitan, and old Neapolitan.

*Growing Violets in Moss for Filling Flower Boxes, Table Decorations, &c.*—Large plants may be had by lifting well-grown plants carefully and removing all the soil from the roots. If it adheres very closely to them wash it off. Remove any bad leaves, and with some wood moss freed from leaves, sticks, and rubbish, and washed clean, take a handful of charcoal and wrap it in a little moss. Take the plant in the left hand, and plant so that the roots will spread evenly over the ball of charcoal and moss, forming into a ball, and cover the roots neatly with moss, and secure with fine galvanised wire. Immerse in water, and pack in boxes of about 3 inches depth, with holes at bottom to allow superfluous moisture to drain off. The plants can be placed either in the boxes or close together on slate shelves in a house with a temperature of 40° to 45° at night, and 50° by day artificially, and sprinkled each morning, they will soon be sufficiently advanced for use in the house. Such, from their less weight, are much better than plants lifted with balls of earth and mossed,



in which way, however, they answer very well. Care should be taken to keep the moss thoroughly moist. Weak liquid manure in a clear state and tepid may be given whenever water is required by immersing the mossed halls of roots.

Small plants for table and other decorative work can be had by layering the runners in the summer as advised for Violets in pots. These lifted in autumn, the soil washed away, a piece of charcoal wrapped in a little moss, the roots spread over it, covered with moss, and secured with wire, may be treated as advised for the larger plants. When furnished with fresh leaves and flowers they are charming for decorative purposes. The system is applicable to all kinds of Violets, but the best are Russian, Floribunda (Boothby), Victoria Regina, White Czar, and argenteoeflora, with Odoratissima of the single varieties. Of the doubles, Patrie, and Double Russian of the dark blues; of Neapolitan vars. New York, De Parme, and White Neapolitan.

*Securing Violets in Winter by other Means.*—Plants lifted in autumn with balls of earth, and planted in the borders of fruit or plant houses, which, though unsuitable for growing the plants, will by the shelter and immunity from frost have the flowering accelerated. They may be packed in leaf soil on the border with a board or boards on edge supported by pegs driven in the border. Peach houses and orchard houses may be named as suitable structures for Violets, but any houses from which frost is excluded but otherwise kept cool are suitable. Plants in flower may also be had by lifting with roots and packing them in boxes in leaf soil, and placing in frames, or houses where there is a gentle heat well up to the light, from which they can be withdrawn when in flower, mossed, and used for mixing with other subjects in house decoration.

Plants can also be lifted and placed at the foot of walls or fences with a south aspect, planting in leaf soil well mixed with the soil, and giving a good watering to settle the soil about the roots. They may be covered with handlights, and given air on all favourable occasions, and protection given in severe weather, some useful sweet flowers will be obtainable when there are few or none other to gladden sight and sense. Plants placed at the foot of walls or fences with a warm aspect will come in much in advance of those in the open, and in the case of Neapolitans they may survive when those in the open are too much damaged to give flowers of value or any at all through frost, which is very destructive of Violets, especially in low or flat localities inland. Violets like hills and sea breezes, in fact warmth without air is positively ruinous, and equally disastrous is drought; therefore, plants in front of walls must have the soil kept moist, and no coddling allowed under any circumstances.

**PROPAGATING VIOLETS.**—Violets are increased by seed, some coming true, which more particularly applies to the species, garden varieties being very sportive when raised from seed; by runners, suckers, and cuttings.

*Seed.*—Flowers fertilised in spring ripen the capsules of seed in summer or autumn, but some autumn flowers ripen the seed pods in spring. Only the single varieties seed. Some of the semi-double varieties, however, afford seed sparingly, as *Parmensis plena* and White Neapolitan. The seed should be gathered before the capsules burst, which may be ascertained when about to take place by the changed colour of the seed pods, they becoming much paler or a creamy white. Laid on a sheet of paper or on shelves they soon shed the seeds, if kept dry and cool. They may be sown as soon as ripe in beds outdoors, and covered about a quarter of an inch deep with fine soil. If sown early in autumn or early in September they will germinate at once, and in that case are best sown in cold frames, in pans, or boxes. They should be kept moist, well up to the glass, and ventilated freely on all favourable occasions. In spring, when well hardened, plant in lines 18 inches apart and 1 foot asunder in the rows. This is for garden varieties of Czar, which is a seedling of Giant, and Giant a seedling of the Russian, but species need only have the rows 12 inches or 15 inches apart, and 3 inches less in the rows. Well attended to they will flower the ensuing season.

Spring is, however, the best time to sow Violet seed, it being kept cool and dry over the winter, or it may be sown in autumn, in which case the plants usually do not appear until the following spring. March is a good time to sow the seed. The seed should be scattered thinly. When the plants show the second leaves prick them off about 3 inches apart, water, and shade until established. Transplant to their flowering quarters before they become crowded, duly attending with water, &c. The strongest will flower the following season, but some will need to remain another year and be treated as established plants before they flower in character; indeed, they ought to be kept a year after they flower if at all worthy, as the first blooms are not nearly so good on the seedling as those borne by the parent subjected to cultivation by its suckers or runners. Tender varieties should be wintered in frames. Except for the raising of improved varieties the raising of Violets from seed is not advisable, as they are not so floriferous and do not afford such fine blooms as plants from suckers or runners. By selecting plants that show improvement in the blooms and saving seed from them, much further progress can be made; but taking Princess of Prussia (Lee) as a fair example of what a Violet should be, or even Odoratissima (Lee), very few seedlings indeed pass muster, and such only are worth continuance.

*Runners.*—Strong plants put out in April afford runners through the summer freely. When they show the plant at the end of the runner wire they may be layered in pots, and secured with pegs made of No. 14 galvanised wire cut into lengths of about 3 inches and doubled like a hair pin, having about half an inch space between the wire. The runners may also be layered in the soil, and kept moist they will soon root, about an inch of the runner wire being inserted in the soil and secured with a peg. When rooted, detach them and plant them in nursery beds in rows about 6 inches apart and 4 inches asunder in the rows. Early runners will

require more distance. Very late runners may remain on the plants until planting time in spring. Early runners in pots should be stood on a north border for a few days after being detached, and when recovered potted in 5-inch pots and grown on in the open. They give some very fine flowers in winter treated as pot plants. Small varieties should only be given 4-inch pots. Runners are the very best for making fresh plantations, being preferable to suckers.

*Suckers.*—There are most generally used for making fresh beds. They come from the stem below ground, and are detached in spring, and usually have roots. Some varieties have few offsets or suckers, most after a stock is formed afford sufficient for general purposes of increase; but though a ready means of maintaining the stock, it is not so good as the despised method of following Nature, simply because it is handy and entails less trouble. Suckers are very often weak and drawn from being overshadowed by the parent, and they sometimes so feel the loss of the shelter as to take very badly to their new quarters, being much affected by the exposed situation, going back instead of forward.

*Cuttings.*—These are of two kinds—viz., rootless runners and rootless offsets or side growths. Rootless runners are common in spring on Neapolitan varieties. These detached in February or early March with about 2 inches of the runner wire, and cut transversely below a joint if there be one about that length, a little more or less not making much matter, from the runner plant or leaves at the end of the runners, and dibbled around the sides of pots, or in pans about 1½ inch apart in light loam and leaf soil in equal parts, with a sixth of sand, inserting them up to the leaves, and if placed in gentle heat, kept moist and shaded, they soon form roots. When hardened they can be pricked off in cold frames, and grown on preparatory to planting out in late April or early May. Late runners may be rooted in a similar manner, or kept over the winter in the cutting pots in cold frames they will root slowly but surely, being kept moist, plunged, and protected in severe weather.

Cuttings of the tops or side growths root freely in gentle heat at any time, but preferably in September and March. Growth with an inch or two of stem and the crown or growing point are suitable, trimming off the leaves with a sharp knife, leaving those at the crown intact, and cutting transversely below a joint, insert up to the centre leaves, leaving them just clear of the soil. They strike equally well in a cold frame, but take a longer time. This method is available for varieties that do not afford runners freely, but the plants are not nearly so strong and healthy, being very liable to lose the centre or crown. Cuttings or runners should always be taken from healthy floriferous plants with flowers large in size and of fine form.—*VIOLA.*

### RED SPIDER ON MELONS.

WE have always been of opinion that, next to the destruction of the mealy bug on stove plants, that of the red spider on Melons is a subject of great difficulty. The golden rule is, in both cases—Try to keep the vermin away; as though certain extreme measures will annihilate both these pests, yet their destruction is rarely accomplished without that amount of injury to the plant which makes the cure worse than the disease. Nevertheless, as something must be done to save a crop of Melons, which the amateur prided himself upon as likely to produce something valuable, and which, hitherto, looked every way promising, when lo! he is astonished or alarmed at seeing a few of the large leaves in the centre of the plant look rather brown or yellow; and, on turning them up, he sees a thin film of spider-work stretching between the ribs and other portions of the leaf, and, to the naked eye, minute insects of a brownish red colour may be seen nestled here and there amongst the network, which they have drawn over their workings. This latter pest, whose powers of production would seem to set all calculation at defiance, exists in such a multitude of plants of various habits, that it may almost be called universal. A gentleman told me that he has discovered it on the leafless succulent plants of the Cactus family; and we all know how much field Turnips are affected with it in hot seasons; and trees innumerable, down to the very Box edging which margins our walks, being, in certain seasons, a martyr to it. Now, when we see it living and thriving on the hard leaf of Box, how much more likely is it to take up its abode and multiply on the more delicate foliage of an annual plant so tender as the Melon; so that we may fairly inquire if a perfect remedy be not an unsolved problem? Nevertheless, we are far from giving it up, and as we have had much experience in the matter, we will give the result, with now and then a suggestion to meet individual cases, beginning first with what we suppose to be the causes which favour its first attack.

We are led to believe that the larvæ of this insect either lurk in the frame, or are carried thither by the winds, or some other of those agents which tend to multiply the species of the lower orders of vegetation, as well as of animals; our first duty is, therefore, to check that if we can, on the good old golden precept that "prevention is better than cure." Washing well the lights and ratters is attended with benefit, and the same to the interior of the box or pit, with all its fittings; after which the latter ought to be whitewashed with a compound in which lime and sulphur were mixed, with perhaps a little cow dung to make it adhesive. Bright sunny weather following after the plants have grown so as almost to occupy the whole of the frame, daily watering about four o'clock in the afternoon, and shutting up for the evening, will be of great service in preventing this pest, much more so than dusting with sulphur; this, however, cannot well be adopted in all cases with those kinds called "difficult setters," consequently, while that process is in operation, the



frame must be kept more dry. If red spider attacks the plants at this early stage, we fear all the assistance in the universe will hardly insure a good crop; but we will suppose them to have prospered so far, that a fair crop of fruit, half swelled or more, is for the first time noticed to be attacked, and then the question is—what remedy to apply? Water is found unable to stay the ravages of the little marauders, and some other auxiliary must be put in force; one of the best is partial shading. For that purpose a slight colouring the glass with limewash is useful; if this be used, let it be done outside, as it does not easily wash off with rain, and leaves so gradually, that the loss is imperceptible; flour and water adhere less firmly to the glass, and ought to be applied inside. This shading being more congenial to the welfare of the plants than to the insects, enables the former to advance, not so fast, certainly, as when enjoying the full amount of unobstructed sunshine, yet sufficiently so as to leave their enemies in the rear.

Perhaps, however, this remedy is insufficient, and the enemy keeps advancing; some other means must be adopted. Now we have heard some recommend watering with soapsuds as a cure, but somehow we never derived the benefit from that plan commensurate with the mischief it occasioned. Soapsuds usually leave a coating on the leaves of plants of a thick glutinous matter, which, in point of substance, very much resembles paint, and is scarcely less difficult to remove. It is therefore injurious to the delicate foliage of the Melon, rendering them all but useless for the purposes intended. Their numerous pores being all but scaled up, they languish and die. Dabbing on soapy lather is only another mode of effecting the same object, that unless assiduous waterings at the proper times and shading as above be able to combat the evil, recourse must be had to that all-important insect killer sulphur, which, however, must not be applied in dusting the leaves, but in placing it in such a manner that its fumes will act on the insect without its coming in immediate contact with the plant. Now in a pit heated by hot water this object is easily effected, as scattering some along the heating contrivances effects the purpose at once. Not so, however, the common dung frame, in which the great mass of Melons grown in the summer months are produced. Here something on which the warmth of the sun may act must be put in requisition; for that purpose paint the inside of the box with a mixture of clay and sulphur, the former is simply to give it substance so as to adhere, for which anything else may be substituted.

In addition to this, paint a few pieces of slate, tiles, or small pieces of board in the same way; these pieces lay carefully under the parts of the plant most affected, and the sun acting on them occasions their emitting that vapour so obnoxious to this insect, as it is well known that it is only the gas generated by this substance becoming warmed, to a certain extent, that proves fatal to this and other members of the lower creation, that we regard it almost innocuous at a low temperature; in other words, we think its utility is increased the more we can smell it, which everyone knows is most done in a bright sunny day, or when subject to fire heat in some shape. As we have used these painted slates with success, we strongly urge on the amateur, whose plants are threatened with red spider, to think of that in time. Remember, we only advise their adoption when plain, clean, soft water has failed to stay the progress, or effect a cure, while he may apply both remedies at the same time; the coloured slates by day, and watering all over at nights, taking care to remove the slates when he waters, which, however, is quickly done. We will not affirm that he will be able to restore plants once attacked to the condition of those never so afflicted, but probably he will be able to maintain them in sufficient health to ripen the crop; the latter part of which time he ought to be very careful in giving no more water than just sufficient to maintain the foliage in health.—R. J. O.

#### IVY-LEAF PELARGONIUMS.

We are cutting trusses of the best double varieties now, and from the extreme beauty of the flowers, combined with adaptability as decorative plants—features which are as yet comparatively unknown—I am induced to send this note in their favour. The plants are easy of culture, provided their requirements are understood and supplied; the chief point in which beginners are likely to make a mistake being giving too little heat, at least early in the season. My experience with them is that they require to be kept warmer than the single varieties in order to insure plenty of flowers over a lengthened period.

The best time to propagate is the present for strong early-flowering plants, and in August for plants to come on later in the season. I like strong cuttings rather hardened at the base than soft. One cutting is put into a thumb pot filled with light soil, and the pots are placed in a warm pit until a fair number of roots have been made. During the summer months a cold frame suits them well. The attention they require is first to shift them out of the cutting pots when thoroughly well rooted, and potting into 4½ or 5-inch pots. The soil I use is a turfy loam enriched with cowdung. The pots are well drained, and in potting the soil is made firm. This potting will carry the plants over the winter. Then they will require pinching at least twice—the stronger plants before potting, any others after they have become established. About the middle of September the plants are pinched the second time. An occasional surface dressing of an artificial manure being of much benefit to the plants, and may be applied about once in three weeks from the end of August. Stake as required. The plants should be kept growing throughout the winter months, and if properly managed will require a slight dressing of manure at intervals, as above stated, right on until February, when they are ready to be transferred into 7 or 8-inch pots. A couple of months' further attention to pinching, staking, watering, and

keeping the plants in a growing temperature will have secured fine strong plants full of flower. During summer manure should be applied in weekly dressings, straggling shoots pinched and tied to sticks, and the trusses removed as they open fully, or as wanted. August cuttings are harder than those which can be had now; moreover, they can be cut much longer, and the foundation of a strong plant is more easily secured. The cuttings strike well, several in one 6-inch pot filled with light soil, or they may be put singly into 2½-inch pots and wintered therein. In any case it will be found that the cuttings will strike most steadily if they are placed under glass—such, for instance, as an earlyinery. During winter do not allow the plants to stagnate in a cold house, but keep them growing. In February pot the plants, using 4 or 5-inch pots, according to the strength of the several plants. If care has been taken to pinch those requiring to be pinched during winter, the plants when potted will be stout and bushy, and will require much the same treatment as already advised for the earliest-struck batch. They may either be flowered as small plants in early summer, or if potted into 7-inch pots will make strong fresh plants for flowering later on. The same plants do very well a second year in the same pots, but though perhaps more floriferous the trusses are not so fine as on young plants. As to sorts, all those we have had during the past year or two have been good. Single varieties are more easily managed, and are more floriferous, but I do not like them so much as the double varieties either for beauty or usefulness. In addition to their adaptability as pot plants, some of them are very suitable for growing in baskets or for drooping over the edge of stages. The stronger-growing kinds run very rapidly up pillars when planted out, and are also of value for covering wall. We have bedded them for several seasons, and though in our locality they cannot be said to have proved of great value, still, in singles Progress has been passable, and of the doubles the old Anna Pfitzer is perhaps the best. Sylphide and Madame Crousse also do fairly well.—B.

#### SAVING LABOUR AND PLUNGING PLANTS.

In establishments where plants are grown by thousands for decoration and forcing there are necessarily large numbers that are turned out of the houses when the weather is favourable in spring and early summer. These are generally stood upon walks, or in any position where the supply of water is convenient. To have these plants again in good condition for autumn and winter they need considerably more labour in keeping them supplied with water than in all other cultural requirements together. The labour required for this purpose in some establishments is enormous, and during tropical weather very little other work could be done. This is a serious matter, not so much because other work lags behind, but to pour water into the pots two, three, or four times a day is injurious.

Those who have made any study of the conditions under which plants thrive best as regards moisture at their roots know that to have them wet and dry several times during the day is not conducive to health or vigorous growth. It would be difficult to name any treatment more likely to bring plants to a complete standstill, and thus predispose them to the attacks of insects and disease. Plants that have to be so frequently watered soon display to the intelligent observer by the yellow sickly appearance of their foliage that something is wrong. They need not be turned out and examined, for the roots or feeders have been injured, and the supply of water and food necessary to maintain the foliage healthy and the plants vigorous has been cut off. Exactly the same results follow when plants have been given insufficient to soak the whole of the soil; the lower leaves flag, turn yellow, and eventually fall if not removed. It may be asked, Why do not the plants die when watered on such principles? Simply because the whole of the roots are not injured at the same time. Those nearest the top of the ball that have received the water are ample to keep the uppermost portion of the plant alive, lingering between life and death.

Plants succeed much better when the soil about their roots can be kept moist without applying water too frequently. It is an impossibility to keep the soil always in an intermediate state of moisture, therefore it remains for us to endeavour to keep the soil moist as long as possible after water has been applied, so that as long a space of time may elapse before another application is needed. This can be accomplished by preventing evaporation, and the best means at the disposal of cultivators is to plunge the pots and supply the moisture evaporated by syringing or otherwise. Plunging plants in pots has been condemned as an unsafe system of cultivation, principally because the soil is liable to become saturated and sour from overwatering. I fail to see that a useful and beneficial system should be condemned because those entrusted with the watering carry out the operation carelessly. Young men that intend to grow plants successfully must learn to water plants as well when they are plunged as when they are not. Plants that are plunged to the rim in soil, ashes, or other material dry less quickly than when stood upon the surface, and even if they do become dry the roots are



less liable to suffer than those subject to the sun and drying influence of the atmosphere. Many plants, such as Roses, Prunuses, Lilacs, Solanums, Callas, Bouvardias, and many others will bear not only being plunged to the rim of their pots, but the pots and surface of the soil may be covered. This is a much better system than plunging merely to the rim, for it prevents evaporation, and the soil will remain moist for a long time. If the plants have just been watered, or the soil is moist when they are plunged, they will need no water for a long time provided they are well syringed daily, and the surface of the plunging material kept moist. In addition to this system saving days, and in the end weeks of labour, the plants will remain healthy. No system that we have yet practised has kept the soil about the roots in that uniform condition so long as plunging the pots entirely, and not the slightest injury to the plants will result. It may be argued that Solanums, Callas, Salvias, Bouvardias, and such plants would receive a serious check when they had to be removed if they rooted through the pots into the plunging material. Cultivators need not be alarmed at a few roots getting out of the pots, for if the plants are carefully treated no harm will follow. Plants such as indicated can be lifted from the open ground and repotted without any apparent injury, for the roots are not mutilated to such an extent by removing the few outside as what they are by the lifting system. After they are lifted out if soaked with water, placed behind a north wall, and kept well syringed for ten days or a fortnight, they will stand in any position afterwards.

The system of burying the pots should commend itself to all who wish to save labour in watering, have healthy instead of sickly plants, and reduce to a minimum the care and responsibility of production.—WM. BARDNEY.



#### HARDY FRUIT GARDEN.

NOTWITHSTANDING a cold late spring and frosts night after night in May, and even in the present month, the fruit crop both of Peaches and Nectarines is a full one. Never did we see the fruit set and swell more freely, and it has required some resolution to thin it sufficiently to insure fine fruit. The foliage is singularly free from blister, only two or three trees being slightly affected by it, and we have now the pleasant task of the selection of fruiting wood for another season from a clean sturdy unchecked spring growth, and the certainty of fully developed well-ripened wood in autumn. Again we say avoid overcropping, avoid crowded wood growth, retain only enough wood to fill wall space or to bear fruit. Not one shoot more should we suffer to remain upon the trees than we require for either purpose. After the disbudding has been done do not indulge in rash pinching of the growth of young trees, but rather do all you can to encourage free unchecked growth. When the young wood of old trees has a tendency to put forth sub-laterals much good may be done by pinching the sub-laterals and cutting off half of each leaf growing near the base of such untimely growth. If this shortening of the foliage can be done when we notice the first symptoms of sub-lateral growth we should by checking the flow of sap do much to prevent it. Sound judgment, common sense, and we may add prescience of development, are certainly highly important qualifications in those who undertake the culture of Peaches and Nectarines. We should know what is possible in the development of wood growth, foliage, blossom, and fruit. A glance at the condition of a tree should enable us to see whether ordinary, moderate, or hard pruning is necessary to promote that end and aim of good culture, robust wood growth and fine fruit. It is now that we are best able to decide how each tree should be pruned next winter, and there should be no hesitation in marking all trees of weak growth for a severe course of treatment then. Experience has shown that a Peach tree is naturally as elastic as a Grape Vine, its wonderful recuperative power enabling us to restore the pristine vigour of trees apparently worn out by hard cropping or other improper treatment.

See to the timely training of the new growth of all young fruit trees, taking care to fasten the shoots loosely, so as to allow space for swelling growth. Destroy caterpillars, of which many may be found feeding upon the foliage of dwarf Apple trees at this season of the year. Aphides attacking the shoots of Cherry trees should be destroyed by sponging or dipping the shoots in a strong infusion of tobacco, the trees being afterwards syringed with clean water. Continue the use of sewage freely to assist the swelling fruit. In doing this do not be satisfied with mere surface wetting, but take care that enough is given each time to reach the whole of the roots.

#### FRUIT FORCING.

VINES.—*Late Houses*.—*Thinning*.—However pressing other matters, there must not be any delay in thinning late Grapes, and in order to

secure large and highly finished berries, thin them well, especially in the interior of the bunches, leaving the larger-berried varieties, such as Gros Colman, Gros Guillaume, &c., about an inch apart, the oval-berried varieties not requiring so much room as the round ones, but all should be so thinned that they will have space for swelling fully without wedging, and yet be so close that when dished they will retain their form. Loose bunches that show the footstalks, however fine the berries, are not so pleasing in appearance as more compact bunches. Black Morocco and other shy setters are often thin of berries through the number of stoneless ones that must be removed, to guard against which no pains should be spared in getting the wood ripe, and in fertilising the bunches when in flower with pollen from Black Hamburg. Not only is it necessary to thin the berries, but the bunches must be reduced to that number which their size and condition of the Vines warrant as likely to finish satisfactorily. If an error is made let it be on the safe side, as Vines that are overburdened never finish their fruit well, and it is inferior in keeping qualities.

*Watering*.—The inside borders should be well supplied with tepid water, following in the case of Vines that are carrying full crops and in good but not too vigorous health with thicker liquid manure, also in a tepid state, mulching with short material, which kept moist will give out ammonia and attract the roots to the surface. To allow the border to get dry at the surface causes the roots to strike down in quest of moisture, the crops finish badly, the wood does not ripen well, and the consequence is the Vines start badly; the bunches instead of elongating, curl, twist, and wither, or if they escape that, the bunches are often spoiled through shanking. Neglect in watering borders that are well drained, as all Vine borders should be, and mulching, especially where the Vines are carrying a heavy crop, is not only disastrous to the present crop, through inducing attacks of red spider and premature ripening of the foliage, but injuriously affects next year's crop of fruit. Outside borders will only need mulching, as the recent rains have moistened them well, but if dry, a soaking of tepid liquid should be given whenever necessary.

*Firing and Ventilating*.—Cold nights render fires still necessary, it being a great mistake to let the fires out now and have to fire hard later on when the sun has less power to ripen the fruit. All late Grapes thrive best in a high temperature with abundant food both at the roots and in the atmosphere. Fires should be employed to maintain a night temperature of 65° and 70° by day in dull weather. Admit a little air early, a little at the top of the house constantly, increasing the ventilation with the temperature, allowing an advance to 85° or 90°, at which keep them through the day from sun heat, reducing the ventilation with the declining sun. Close at 85°, damping the paths, &c., well then, and again before nightfall. It is well to close for a short time, and afterwards admit a little air, which will prevent a vitiated atmosphere and allow the foliage drying in the morning by the time the sun acts powerfully. Late Grapes are generally backward this season, hence the desirability of making the most of sun heat and aiding with artificial. Avoid cold draughts or sudden depressions of temperature, as they cause rust.

*Regulating the Growths*.—Allow all the foliage that can be exposed to light, but when the space is fairly covered with leaves keep the shoots closely pinched. An excess of foliage is not good, though it is often encouraged with a view to root-action, but it is elaborated sap that builds up the structure of the Vine, the crop of the current year, and the wood and buds that give the fruit of the next. Foliage should be rather thinner in the case of white Grapes than in black, this more particularly applying to Muscats. Avoid large reductions of foliage at a time; it only tends to cause shanking through the check given the roots. Keep the growths tied down from the glass, and so prevent scorching. Vines extending should be allowed to make as much lateral growth as practicable, always bearing in mind the wood on which fruit is to be borne next season must have full exposure for its foliage, as the principal leaves that elaborate the sap and transmit the assimilated matter that forms the buds at their base. The laterals from these having been stopped at the first joint, they may be allowed to ramble afterwards, subject to their not interfering with the access of light and air to the main leaves.

PEACHES AND NECTARINES.—*Early House*.—The fruit will shortly be all gathered. Admit all the air possible day and night. If the roof lights are moveable take them off after the trees have had full ventilation for a fortnight, and keep the foliage free from insects by forcible syringings. Softsoap, 3 ozs. to the gallon of rain water, will destroy red spider, and if scale be present use petroleum, a wineglassful to 4 gallons of water, to which has been added half ounce of soda, and 4 ozs. softsoap thoroughly dissolved, keeping the petroleum well mixed with the water during its application. Keep the borders well watered, affording liquid manure to weakly trees, it helps them to plump the buds; and mulch with short manure. Cut away the wood having borne fruit to the shoot at the base intended to fruit in its stead next year, unless such shoot is required for extension. If there be a superfluity of shoots remove them now, they only keep light and air from the principal foliage, and hinder cleansing operations. Keep laterals and any gross shoots closely stopped.

*Houses of Ripening Fruit*.—Trees with the fruit ripening must not be syringed, but a moderate moisture should be maintained until the fruit is ripe, and even when ripe an arid atmosphere should be avoided, as it is highly prejudicial to the foliage. Water must also be given the roots liberally. Admit air abundantly. In gathering Peaches great care is necessary, as the least pressure makes a mark and spoils their appearance. A piece of wadding should be held in the hand, and the fruit removed by gentle pressure, and then laid gently in a padded basket or tray. A cool and airy fruit-room is best place to keep Peaches and Nectarines after they are gathered.

*Trees Swelling their Crops*.—Stoning being over, the trees will stand



a strong heat without fear of the fruit falling. Afford tepid liquid manure to the roots of trees carrying full crops, and otherwise not too vigorous, but be careful in giving liquid manure to very vigorous trees, as it tends to its increase, and may so exert influence as to interfere with setting and stoning in the succeeding year. Still liberal treatment is necessary, good surface mulchings and copious waterings every week or ten days in well-drained borders. Syringe twice a day to keep down red spider. Ventilate early, keep through the day at 70° to 75° artificially, and 80° to 85° with sun heat, and close sufficiently early to increase to 90°. This with plenty of moisture in the house will insure large fruit, and if care be taken to give ventilation before nightfall no disaster will arise if it be increased sufficiently early in the morning, but if a close and high temperature be maintained the fruit, though large, will lack flavour, and not unfrequently has a musty taste, particularly if the water hangs for any length of time on the fruit after syringing. Keep the fruit with its apex to the light, laths across the trellis will admit of this being done perfectly, and clear away the leaves from the fruit, but do not cut them away unless it cannot be helped. When approaching ripening admit air freely, and 60° to 65° will be a sufficiently high temperature at night or artificially in the daytime, unless the ripening is wanted accelerated, when it should range 70° to 75°, and 10° rise from sun.

**Fruit Stoning.**—Maintain a steady temperature of 60° to 65° at night, and 5° to 10° rise by day, and the usual advance of 5° to 10° or 15° at closing time from sun heat. Avoid a close atmosphere, and maintain as uniform a condition of temperature and moisture as practicable. Sudden fluctuations of temperature and cold draughts are very pernicious; equally disastrous is insufficient water at the roots. Allow a moderate extension of growth during this trying time, and do not permit a great percentage of fruit to go to the stoning that must be removed afterwards, but remove in good time. A superfluity of fruit at stoning jeopardises the crop, and even if the trees succeed in stoning it rarely finishes well, but falls off small and flavourless, and a failure another season may be anticipated. Stop gross growths or remove them altogether, so as to keep up an equal diffusion of growth throughout each individual tree.

**Late Houses.**—Train the growths thinly, reserving a shoot at the base of the current fruiting wood, and stop the growths on a level with or above the fruit at two or three leaves, and succeeding growth at a joint or two of growth. Side growths on extensions not required for furnishing the trees may be stopped at an inch or so of growth to form spurs, and by adding to the foliage will much encourage root-action and benefit the fruit; besides, these spurs usually set and swell fruit when the stronger growths on young trees do not. Thin the fruits to a few more than will be required for the crop, retaining the largest and best placed, and do not allow more than a fruit to each foot of trellis covered by the trees, but a few more may be left to meet casualties in stoning. Syringe twice a day except on dull days. During the prevalence of dull weather an occasional syringing will be all that is necessary, as it does not answer to keep moisture hanging on the foliage. Indeed, the leaves should always be dry, or nearly so, before dark. Water inside borders fortnightly, and afford liquid manure to weakly trees. Mulch the border with short manure, and keep it moist—a mulching on dry ground is no use whatever.

**CUCUMBERS.**—When the night temperature can be kept from falling below 65° fire heat may be dispensed with, much being effected by husbanding the sun heat and early closing. Continue to look over the plants weekly, well thinning the old growths, training young in their place, avoiding overcrowding and overcropping as great evils certain to result in disaster. Afford liquid manure copiously twice a week, and surface dressings of lumpy loam, supplying ammonia by sprinkling the bed occasionally with horse droppings, but be careful not to overdo it, or the foliage will suffer irreparable injury. Syringe on clear days in the afternoon only, but keep a good moisture in the house all day long by damping available surfaces as they become dry. Morning syringing is often the cause of much injury to the foliage. Shade only to prevent the foliage flagging, and be careful to apply it promptly on bright weather succeeding a dull period. Ventilate early, but avoid cold draughts, and never admit air in such volume as to lower the temperature. Keep through the day at 75° to 90°, according as the force of the solar heat dictates; in bright weather between 80° and 90° should prevail in the house from 8 A.M. to 6 P.M. Close early so as to increase to 90° or 95°, and admit a little air before nightfall as a safeguard against condensed moisture, increasing it from 7 to 8 o'clock on fine mornings.

**Pits and Frames.**—Night coverings will hardly now be necessary, but if put on it should not be done until the sun is off the frames, and it should be withdrawn early in the morning. Ventilate at 75°, and increase with the sun's elevation, keeping through the day at 80° to 90°, closing at 3 to 4 P.M., then syringe, and after being closed for an hour or two admit a little air at the back of the lights to allow of any pent-up moisture escaping. Supply liquid manure occasionally, but keep it from the foliage and fruit, and let it be weak and tepid. Remove had leaves as well as exhausted growths, thinning the shoots once a week, stopping the growths one or two joints beyond the fruit, and when the plants are enfeebled by bearing top-dress with lumpy loam, and layer some of the younger growths at a joint from which fresh roots will be emitted and strengthen the succeeding growths.

#### PLANT HOUSES.

**French and Fancy Pelargoniums.**—For early flowering another season cuttings may be rooted without further delay. For decoration in 5 and 6-inch pots plants raised from cuttings annually are decidedly the best. Strong vigorous shoots should be selected for this purpose, and not

mere flower stems after the shoots have become woody and the plants exhausted by flowering. There are generally one or more shoots on each plant that can be taken for this purpose, and the operation can be continued as the plants come into flower until the requisite quantity have been raised. Insert the cuttings singly in sandy soil in 2-inch pots, and if placed on a shelf where the temperature ranges about 60° they will soon form roots. While in this position they should be kept moderately moist and shaded from strong sun. Directly they are rooted they may be gradually hardened and grown under cool airy treatment. The point of the young plant should be removed to induce it to branch, when they may be removed into larger pots. The majority of the varieties will only need pinching twice to form bushy specimens. The earliest plants should not be pinched after the beginning of September. Old plants that it may be necessary to retain for another year should, when they cease flowering, be exposed to full sun outside and kept rather dry until the wood is hard and ripe. During heavy rains the plants are better turned on their sides.

**Zonal Varieties.**—The majority of the plants required for winter flowering may be placed in their largest pots. Frame room will now be more abundant, and these plants must be established in their pots, and at the same time gradually hardened in such positions and then turned outside. The sooner they can be stood outside the better, so that firm sturdy growth will be made, for upon this depends whether the plants flower satisfactorily or the reverse during winter. If plants are required in 3 or 4-inch pots for decoration root cuttings without delay. Many free-flowering double and semi-double varieties are serviceable in these sizes during the winter. Although they do not flower so freely as many singles, they last much longer in good condition in rooms, and when they have done duty there they can be conveyed to the rubbish heap. Root them in thumb pots, then place them in the sizes named and stand them outside.

**Ivy-leaf Varieties.**—The improvement that has been effected with these is wonderful, and many produce their lovely flowers freely, possessing much better habits than the old forms. Where cut flowers are required during summer and winter a number of these plants should be grown. Young stock to be in good condition for autumn and early winter flowering should be ready for transferring from 3-inch pots to others 2 or 3 inches larger. The soil may be pressed firmly into the pots to prevent a quick soft growth, consisting of fibry loam, one-seventh of manure and sand. They should be well established in their pots in a cold frame, and then stood upon a bed of ashes outside, where they will be fully exposed to the sun. These plants flower freely if they possess short-jointed, firm, well ripened wood when housed in autumn. The shoots may be pinched from time to time to induce them to become bushy. Few plants pay better for planting out than these under glass in some cool airy sunny position.

**Calceolarias.**—Sow seed where plants are required in bloom as early in the season as possible. A pan or pot may be filled with light sandy soil, and the surface made even and fine, on which sow the seed. It should not be covered, but watered with a fine-rose can, and then covered with a square of glass with damp moss laid on the surface, and the pot or pan stood in a cold frame with a northern aspect until germination has taken place. Light and air must then be gradually admitted to the young plants until they will bear full exposure in the frame.

**Cinerarias.**—Place the earliest plants without delay into 5-inch pots, and grow them from this time under cool airy treatment. Younger stock may be placed into 3-inch pots from pans into which they were transplanted from the seed pot. Those sown some time ago will be ready for pricking out singly. Another pan of seed may be sown. These plants, in whatever stage they may be in, are much better grown cool than in a heated structure. If possible they can be grown in frames where they will receive abundance of light, but be shaded from the sun without the aid of artificial means.

**Celosias.**—To obtain plants for winter decoration seed should be sown at once in gentle heat. Cover the seed lightly, and shade the pan from the sun until germination takes place. Directly the seedlings are large enough they may be pricked singly into small pots, which is preferable to placing them in pans or boxes, because from these they cannot be potted without receiving a check, and it is important that they be grown steadily without a check if fine large well developed plumes are anticipated.

#### ROSE AND HORTICULTURAL SHOW FIXTURES, JUNE AND JULY, 1886.

THE following are the dates of the principal Shows to be held during June and July this year. The great event of the season will be the provincial Show of the Royal Horticultural Society at Liverpool at the end of June.

Manchester National Horticultural Exhibition, Old Trafford, June 11th to 18th.

Brentwood, June 17th and 18th.

Royal Horticultural Society Committee meetings and Pelargonium Show, June 22nd.

York Floral Fête, June 23rd to 25th.

Royal Horticultural Society Provincial Show at Liverpool, June 29th to July 5th.

Bagshot and Windlesham Rose Society, at Bagshot, Tuesday, June 29th.

Canterbury and Kent Rose Society, at Canterbury, Tuesday, June 29th.

Diss Horticultural Society's Rose Show, June 30th.

Royal Botanic Society's Evening Fête, June 30th.



Farningham Rose and Horticultural Society, at Farningham, Wednesday, June 30th.

Croydon Horticultural Society, at Croydon, Wednesday, June 30th.

Reigate Rose Association, at Reigate, Thursday, July 1st.

Tunbridge Wells Horticultural Society, at Tunbridge Wells, Friday, July 2nd.

Brockham Rose Association, at Dorking, Saturday, July 3rd.

Eltham Rose and Horticultural Society, at Eltham, Saturday, July 3rd.

Crystal Palace Rose Show, Saturday, July 3rd.

National Rose Society, at South Kensington, Tuesday, July 6th.

Cardiff Rose Society, at Cardiff, Wednesday, July 7th.

Sutton Amateur Rose Society, at Sutton, Wednesday, July 7th.

Oxford Rose Show, Wednesday, July 7th.

Ealing, Acton, and Hanwell Horticultural Society, at Ealing, Wednesday, July 7th.

Bath Floral Fête and Band Committee, at Bath, Thursday, July 8th.

Ipswich and East of England Horticultural Society, at Ipswich, Thursday, July 8th.

Hitchin Rose Society, at Hitchin, Thursday, July 8th.

Hereford and West of England Rose Society, at Hereford, Friday, July 9th.

Maidstone Rose Club, at Maidstone, Friday, July 9th.

Wirral Rose Society, at Birkenhead, Saturday, July 10th.

Leek Floral and Horticultural Society, at Rudyard, July 31st and August 2nd.

## THE BEE-KEEPER.

### THE WAY TO SUCCESS.

THE great charm in bee-keeping is that each one has room for the exercise of individual ingenuity. Nature has indeed laid out a broad safe road, which will be found by those who travel on it to lead to the end for which Nature laid it; but the majority of bee-keepers are not content to go a long way round when they are able to attain their object by a shorter, and, in the case of an experienced man, a no less safe and easy road. Occasionally these bypaths do not fulfil the expectations of those who travel on them; they lead to difficulty and eventually to ruin, instead of to success and profit. Most intelligent bee-keepers have some favourite bypath; one points to this ideal way to success, another to that; each one thinks for a time his own the best. Nature bids bees to swarm, man saves them this trouble or pleasure, and the time wasted in the varied manœuvres precedent to the issue of a swarm lasts occasionally if the weather is unsuitable for many weeks; or possibly in his spirit of self-aggrandisement the bee-master, by giving young queens and continually providing room in advance of the wants of the stock, not only takes away the desire—ever present when an aged queen is ruler of the hive—to supplant the disgraced queen, but prevents such desire from arising. Yes, in bees old age and crippled limbs are a disgrace; they have no hospitals, no almshouses, no poor law union; they live, they work, and when they can work no longer they simply die. A few words on this subject may be useful at the commencement of the busy time of the year to those engaged in bee-keeping.

It is very generally imagined that anyone who desires to do so may become a successful bee-keeper. This is only partially true, for if a hasty thought is given to the success or failure of the bee-keepers of a certain neighbourhood the failures will in most districts predominate. A fair minority do gain good profits, while the majority scarcely manage one year with another to pay their expenses. Bee-keeping is a pleasurable industry, but it cannot be taken up to-day, neglected to-morrow, and profit gained the day following. Thorough care and practical experience, combined with a thorough knowledge of the requirements and habits of bees, are all necessary qualities to make a successful bee-keeper, and, in addition, the knowledge of when to do a thing and how to do it. If a road is to be laid surely the foundation, if not already existing, must be made firm and solid, and then the surface welded carefully together; but some bee-keepers first lay the surface, and then, when the crust gives way, try to prop it up with any materials which can be

pressed into use in cases of emergency. If bee keepers will bear this in mind their troubles will be materially diminished.

The knowledge when a thing ought to be done, and what ought to be done in case of emergency, is after all the great obstacle to success: everything else can be acquired more easily than this, the most necessary knowledge of all. Time, experience, and eyes that see, and a mind that understands, must all be pressed into service by the man who desires to attain these most useful qualities. But how to do a thing is not nearly so difficult a matter. It is from a beginner's point of view, I know, much easier to read how to perform a certain manipulation than to put the teaching into practice; but a great incentive to most men is that if they fail in doing what others perform with ease, they are proved in that particular instance to be inferior to their fellow men. What man has done men can do! In bee-keeping there is no manipulating necessary for profitable management which cannot be performed by every individual person who determines to succeed. Nothing succeeds like success, and nothing ensures success so much as determination to succeed. Each one may take courage in that he can do anything connected with bee-keeping in the way of manipulation. This very facility to manipulate is the bane of modern bee-keeping. The time occupied is far greater than is warranted by any additional profit gained; the bees are continually upset and disturbed, and the apiarian does wonderful things with his bees, but when the time comes for balancing the year's accounts, "all is vanity," and bee-keeping unprofitable.

To such, indeed, the bees yield but a poor result. There has been "a great cry and little wool," as they say at the shearing of hogs. Now to those who have laid any of these short cuts to success to which I have before referred, I will only say, Are the foundations properly laid and strong enough to support the surface? because, if not, by all means strengthen them, and if this is impossible then return to Nature's highway, and travel upon it for another year, reading the works of great bee-keepers, and gaining a knowledge of how to place the lower layer before spreading on the higher. Learn how to do the essential acts in an apiary, and trust to common sense and natural insight, cultivated by judicious reading and conversation with others, to point out the right time to do the right thing, and do it at once without delay. Let there be no procrastination, no waste of energy, no unnecessary manipulation, no increased expenditure unless increased returns can reasonably be expected. Let it be continually borne in mind that the price of honey is low, and likely to become still lower; and cheap production can alone enable bee-keeping to maintain its position as a profitable industry. The less time and money required to produce a pound of honey the more easily can a reduced price be met. Time and money are one and the same thing. Until a sufficient knowledge has been gained, follow the teaching of others, and when such a knowledge has been acquired let individual judgment have full play, and good results will follow.

Bee-keepers are but mortals, and as a child must walk at first with the aid of a mother's arm, so the bee-keeper in his early days must lean on others who stretch out a friendly helping hand, but when manhood comes and childhood days have gone for ever, each one should step out fearlessly, trusting in his own strength. Those who cannot do so are poor cripples, sad to contemplate, pitiable to behold. I have written these lines as a hint to some who may be led by advanced bee-keepers to stop and consider their position. I ask them only two questions. Does the present state of the honey market warrant increased expenditure unless it can be shown that such increase gives a sure return? Do those who spend most money in appliances and time in manipulation make the greatest profit?—FELIX.

### DOINGS OF THE PAST WEEK.

THE continuation of the cold until June induced me to commence feeding some of my hives as a preventive of going back by drawing



brood. To the most needful I gave half a pound of sugar to each. On the 2nd of June the weather changed for the better, and I withheld giving more. On the 7th June the temperature for the first time this season stood at 73° in the shade. The bees were carrying in much pollen and honey, and had increased in weight greatly. A number of the hives appeared as if preparing to swarm. Being too early to put on supers, I gave them full doorway and ventilated a little. The bees all retiring from the front went to work with extra vigour. To put on supers yet would be unsatisfactory, as the yield of honey at this season being from different sources will not make a good sample, and whether or not I must have the hives filled with stores or nearly so for next season before I attempt supering. The strength of my hives will do this in three or four days, then all will be surplus after. Swarming is now general, and if the season is late will suit the bees all the better. A month's fine weather in the end of June and beginning of July will do much good, and will be very acceptable. Until the fine weather and flowers come together, neither neglect feeding nor put on supers. If more room is needed, add to the body of the hive. Be careful not to neglect the feeding of swarms, and preserve as many young queens in nuclei as are likely to be required. Have everything in readiness, and be prepared for any or every emergency that may arise.—LANARKSHIRE BEE-KEEPER.

#### EASTERN DISTRICT OF STIRLINGSHIRE BEE-KEEPERS' ASSOCIATION.

A MEETING of this Association was held at Carron in the Old Inn, Mr. Baird's, on the evening of Friday, the 4th June. About twenty members attended. Wm. Sword, Esq., Bonney View, Falkirk, presided. The business of the meeting was the arranging for the coming Show to be held in Falkirk end of August, and to co-operate with that Society in holding their annual shows. The circulars calling the meeting announced that "A Lanarkshire Bee-keeper" would address the meeting. Mr. Sword introduced him, and said in addition to what Mr. Thomson would explain in his address he would also answer any questions the members desired to put. The address embraced the natural history of the honey bee, and the system most likely to secure the largest amount of honey in this changeable climate, together with the best mode of wintering bees, which was the key to success. The business and the lecture occupied two hours and a half. Thereafter queries were put. It so happened they were identical to those answered in this Journal, which were handed round to the querists, Mr. Thomson meanwhile urging all present to become not only readers, but writers, to the *Journal of Horticulture*, the pioneer in bee-keeping, and the only really practical journal on gardening, farming, and bee husbandry that was published. The members were favourable to this proposal. A good deal of merriment was created when Mr. Thomson said we would all have to look ahead if we wished to preserve our laurels, as they were being quickly appropriated by young bee-keepers of from six to ten years' standing, who seemed to have the knack of inventing things that were in use for a quarter of a century, of which happily the *Journal of Horticulture* carried proof in its earlier numbers. The *British Bee-Keepers' Record*, too, lay on the table, in which Raitt's honey press was announced as having the Lanarkshire powerful screw attached, which was a great improvement over the pump handle; but why it should be called the Raitt honey press was a mystery, and the same applied to Raitt's fume chamber for carbolic acid. Amid much laughter the meeting was brought to a close, when a vote of thanks to the chairman and Mr. Thomson was accorded. At the close several very pretty hives were shown, being the work of amateurs, but in this case, as in many others, beauty and utility were not combined.

#### NUTT'S HIVE — BEES ROBBING.

I HAVE a Nutt's hive divided into three compartments so that I can keep three distinct stocks. I have a stock in the middle compartment, and an end one, but the bees in the other compartment died last winter of dysentery before I bought the hive. On Sunday, June 16th, about 2 P.M., there was a great commotion at the end hive; the bees could not get in and out fast enough—in fact, a neighbour's bees were robbing them. Is it not rather an unusual thing for bees to rob in June? In the evening I turned the hive up and examined it. They had evidently lost the queen some time, as there was a queen cell sealed up, and they were far from being in a condition to swarm, as they had been very weak and were still far from strong. I cut out the queen cell, and on examining it found two fully developed workers in it (dead). It was a young queen, because they swarmed last year. While the robbing was going on, the bees in the middle hive were very excited, they clung on the alighting board and all over the entrance in great numbers all the afternoon, but they went to work again all right on the next day.—H. T. S., *Lincoln*.

[A single compartment of a Nutt's hive is far too small for any stock of bees. The inventor intended the three boxes to form one whole: the two end ones to be used for depriving, the centre for the brood chamber. Robbing in June or at any other time is not a rare occurrence if there is little honey to be had in the fields. A weak or queenless stock is sure to be first attacked, but every hive will be attacked in turn if care is not taken to prevent the success of the thieves. An ordinary queen cell could hardly contain "two fully developed workers." If at the time the queen was lost there were no eggs or young larvae in the hive the bees would be unable to raise a successor, but if the queen had laid up to within a few days of the time of her loss a successor could easily have been raised. Steps must at once be taken to either requeen the bees or to unite them to

another stock. Probably the latter will be the best plan, but without knowing more about the state of the bees and comb it is not possible to give any decided advice.—FELIX.]

#### TRADE CATALOGUES RECEIVED.

W. Lovel & Son, Weaverthorpe, Yorkshire.—*Select List of Strawberry Plants.*



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CORRESPONDENTS.—We desire to assure those of our correspondents whose letters and communications are not promptly inserted that they are not the less appreciated on that account. Our pages are practically filled several days prior to publication, and letters arriving on Wednesday morning, except by special arrangement, are invariably too late for insertion. The delay in the publication of some of these is not of material importance, but reports of meetings and shows held a week previously lose much or all of their value if not received in time to appear in the current issue.

Books (*Great Barton*).—We know of no book of medium size that gives better instruction on all-round gardening than the "Cottage Gardeners' Dictionary." It contains information on nearly everything, with full details for growing the more important plants, as well as fruit and vegetable crops. It can be had from this office, price 7s. 6d., post free 8s. 2d. (*A. L. D.*).—Barron's "Vine Culture" gives all the necessary information for growing good Grapes. The leading varieties are also well illustrated in the work. Price, from this office, 10s. 6d. (*J. Marks*).—"Mushrooms for the Million" is in the press and will be ready very shortly.

Tubes for Exhibiting Roses (*Kittie*).—The tube to which you refer is probably Foster's Rose Holder, an illustrated advertisement of which appeared in this Journal a fortnight since. Those tubes are largely used and, as the advertisement states, are made and sold by Mr. Foster of Ashford, Kent.

Marguerites Malformed (*M. J. T.*).—The most common cause of the malformation of flowers is the attacks of insects, not necessarily at the time of expansion, but as soon as the buds form, and often before they are clearly visible. The slightest injury by puncture at that stage naturally develops as the buds swell and the petals and florets expand. We have known these and many other flowers so distorted as to be quite spoiled by insects puncturing the buds some weeks or months previously. We are answering your letter on the assumption that your plants are healthy and have the requisite support for perfecting their flowers; if that is not afforded failure more or less marked must be the inevitable result.

Bottle-brush Tree, *Metrosideros floribunda* (*Stirling*).—This plant requires a compost of peat and sand with good drainage, and the temperature of a greenhouse or conservatory. Water must be carefully supplied at all times, neither allowing the soil to become too wet or dry. It may be propagated by cuttings of the half-ripened wood at the end of summer, inserting them in sand and placing the pots in a cool frame for a week or two, when they can be removed to a house or frame with a temperature of about 60°. The cuttings are slow in forming roots, and until that is effected they must be very carefully supplied with moisture.

Cropping Vines (*E. M.*).—It is quite impossible for anyone to say how many bunches you should leave on your Vines without knowing whether they are strong or weak, and whether the bunches are large or small. A vigorous Vine well supported will furnish 2 lbs. of Grapes to each lineal foot of rod better than a weak Vine will ripen half that weight. It is a great mistake to overcrop Vines, and it also indicates a lack of judgment to have to relieve overladen Vines by cutting off bunches after time has been spent in thinning them, as in such a case the time has not only been wasted but the Vines needlessly exhausted. Superfluous bunches should be removed as soon as the Grapes set, if not sooner; and if there is a doubt as to how many to remove give the benefit of it in favour of light cropping. A crop of Grapes that looks "light" now will have a very different appearance in two months' time. If lateral growth practically ceases before the fruit commences colouring, that will be proof of the crop being too heavy for the Vines.



**Early Beatrice Peach (J. M.).**—The fruits not having been packed securely arrived in the form of jam, caused by shaking to and fro in the tin box. This also nearly converted the paper on which you had written to its original pulp, and we can only decipher a portion of your letter. Your Peach is probably correctly named. It is one of the earliest in cultivation, and the following the description:—Fruit medium sized, 2½ inches in diameter; round, a little pointed at the apex, and marked on one side with a distinct suture. Skin with a yellowish ground, but almost covered with blotches of bright red, and altogether very highly coloured. Flesh melting and juicy, richly flavoured, and adhering slightly by some of its fibres to the stone, which is white. Flowers white. Leaves with kidney-shaped glands.

**Orange Fungus on Roses (J. W., Pershore).**—We have never seen a worse attack of this fungus than on the shoot and bud you have sent. No application could effect a cure in such an extreme case, for the bud could not possibly expand and develop into a presentable flower if it had been left on the plant. A weak solution of sulphate of copper has been found of service. Dissolve 2 ozs. of blue vitriol in hot water, then mix in two or three gallons of cold water, and apply to the affected parts with a sponge. Harris's sulphide of potassium has also been found effectual by some cultivators. It can be obtained from chemists, with directions for use. Mr. Bardney, who grows Tea Roses extensively, keeps their foliage and also that of fruit trees under glass perfectly free from mildew and insects by the following plan:—About 2 lbs. of soap are placed in a saucepan with a little water, and boiled for about twenty minutes. This is mixed with five or six gallons of water and kept in a large flower-pot. Half a pint of the solution is placed in a large water-pot full of water used for syringing. Neither insects nor mildew appear able to exist on the foliage, while nothing can exceed the admirable condition of the trees and Roses. It is important that it be used regularly—that is, whenever the syringe is employed.

**Lime Rubbish for Vines (J. C., Somerset).**—It is not necessary to crush the particles to powder; if they are broken to the size of walnuts, downwards, there will be no lack of dust. The particles and dust should be mixed with the loam. If this is of a rather strong holding nature Mr. Barron recommends in his excellent book 1 cubic yard for mixing with 5 or 6 yards of loam; but the quantity to use depends entirely on the texture of the soil with which it is to be incorporated. Large particles of lime rubbish are suitable for drainage, on which the soil of Vine borders rests, a layer of turves being laid grass downwards to keep the drainage clear, due provision being also made for the free outlet of water that passes through the borders. Provided you do not lay the cross boards on the Vine border when it is very wet they will do no harm whatever, but, on the contrary, may do good in preventing the escape of moisture from the surface of the soil in summer. We have known the surface of Vine borders netted with roots under boards that had been on the soil throughout the summer, and the roots covered with rich rough soil contributed materially to the health and fruitfulness of the Vines. We are of opinion that many Vine borders are kept too loose and dry near the surface in hot weather.

**Araucaria imbricata Coning (W. Ellis).**—Many Araucarias have produced cones in this country, and seedlings have been raised at Bicton and Dropmore. The pollen-bearing and seed-producing catkins are quite dissimilar in form, and are usually borne on separate trees, but not always. On this subject we cite from Veitch's admirable work that is mentioned on another page. "The Araucarias are not absolutely dioecious, probably far from it. There is a tree of Araucaria imbricata at Bicton, in Devonshire, that has borne catkins of both kinds for several years past, and many young plants have been raised from the seeds of its fertile cones. A fine tree at South Lytchelt, in Dorsetshire, has shown the same peculiarity. As the numerous healthy trees now growing all over Great Britain become cone-bearing, the monœcious principle may probably be found among them to an extent not hitherto suspected. The difference in the sex of the trees was generally thought to give rise to the difference in aspect and habit that occurs so frequently among plants of the same species. The Araucarias, like other Coniferae, are now known to be polymorphous, irrespective of sex, which is shown by the numerous varieties and sub-varieties of nearly all the kinds under cultivation, and are constantly making their appearance." We do not remember where the finest Araucaria is to be seen, but the magnificent Dropmore specimen was measured in 1881, its height being then 61 feet 6 inches, the circumference round the extremities of the branches as they rested on the ground 100 feet, the girth of the trunk, 3 feet from the ground, 7 feet 4 inches. It is a male or pollen-bearing form, and we have not seen a larger or more perfect example.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (A. R. C.).—*Dendrobium Dalhousianum*. (A. C., Liverpool).—The yellow flower is *Lycaste aromatica*, the other is *Cattleya Forbesi*. (J. R.).—1, *Diaplacus glutinosus*; 2, *Berberis empetrifolia*.

**Supering (A Bee-keeper).**—It is not necessary to ventilate the supers, and if you make any perforations the bees will seal them with propolis. The supers will be quite warm enough in your bee house without extra protection.

#### COVENT GARDEN MARKET.—JUNE 16TH.

Our market very depressed, and all classes of goods lower.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. ½ sieve	2 0	3 6	Oranges .. .. 100	4 0	to 6 0
Cobs, Kent .. per 100 lbs.	27 6	30 0	Peaches .. .. per doz.	4 0	10 0
Figs .. .. dozen	3 0	6 0	Pine Apples English .. lb.	1 0	1 6
Grapes .. .. ½ lb.	1 6	4 0	Plums .. .. ½ sieve	0 0	0 0
Lemons .. .. case 10	0 15	0	St. Michael Pines .. each	4 0	6 0
Melon .. .. each	1 6	3 6	Strawberries .. per lb.	2 0	4 0

#### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. .. dozen	1 0	to 0 0	Lettuce .. .. dozen	1 0	to 1 6
Asparagus .. .. bundle	2 0	5 0	Mushrooms .. .. punnet	0 6	1 0
Beans, Kidney .. .. lb.	0 6	0 0	Mustard and Cress punnet	0 2	0 0
Beet, Red .. .. dozen	1 0	2 0	Onions .. .. bunch	0 3	0 0
Broccoli .. .. bundle	0 0	0 0	Parsley .. .. dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	0 0	0 0	Parsnips .. .. dozen	1 0	2 0
Cabbage .. .. dozen	1 6	0 0	Potatoes .. .. cwt.	4 0	5 0
Capsicums .. .. 100	1 6	2 0	„ Kidney .. .. cwt.	4 0	5 0
Carrots .. .. bunch	0 3	0 4	Rhubarb .. .. bundle	0 2	0 0
Cauliflowers .. .. dozen	0 0	0 0	Salsify .. .. bundle	1 0	1 6
Celery .. .. bundle	1 6	2 0	Scorzonera .. .. bundle	1 6	0 0
Coleworts doz. bunches	2 0	4 0	Seakale .. .. per basket	0 0	0 0
Cucumbers .. .. each	0 3	0 6	Shallots .. .. ½ lb.	0 3	0 0
Endive .. .. dozen	1 0	2 0	Spinach .. .. bushel	8 0	4 0
Herbs .. .. bunch	0 2	0 0	Tomatoes .. .. ½ lb.	0 8	0 0
Leeks .. .. bunch	0 8	0 4	Turnips .. .. bunch	0 4	0 6

#### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi .. dozen	9 0	to 18 0	Ficus elastica .. each	1 6	to 7 0
Arbor vite (golden) dozen	0 0	0 0	Fuchsia .. .. per dozen	6 0	12 0
„ (common) dozen	6 0	12 0	Foliage Plants, var. each	2 0	10 0
Arum Lilies .. .. dozen	0 0	0 0	Genistas .. .. dozen	0 0	0 0
Azaleas .. .. dozen	0 0	0 0	Hydrangea .. .. per dozen	9 0	18 0
Bedding Plants, var. doz.	1 0	2 0	Ivy Geraniums per dozen	3 0	6 0
Begonias .. .. dozen	6 0	9 0	Lilies of the Valley, in pots, per doz.	0 0	0 0
Calceolarias .. per dozen	6 0	12 0	Lobelia .. .. per dozen	4 0	6 0
Cineraria .. .. dozen	0 0	0 0	Marguerite Daisy dozen	8 0	12 0
Cyclamen .. .. dozen	0 0	0 0	Mignonette .. .. per dozen	4 0	8 0
Cyperus .. .. dozen	4 0	12 0	Musk .. .. per dozen	2 0	4 0
Dracena terminalis, dozen	30 0	60 0	Myrtles .. .. dozen	6 0	12 0
„ viridis .. .. dozen	12 0	24 0	Palms, in var. .. each	2 6	21 0
Erica, various .. .. dozen	12 0	24 0	Pelargoniums, scarlet, doz.	3 0	6 0
Eunymus, in var. dozen	6 0	18 0	Pelargoniums per dozen	9 0	18 0
Evergreens, in var. dozen	6 0	24 0	Spiraea .. .. dozen	6 0	12 9
Ferns, in variety .. dozen	4 0	18 0			

#### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. .. 12 bunches	2 0	to 4 0	Marguerites .. 12 bunches	3 0	to 6 0
Anemone .. .. doz. bunches	0 0	0 0	Mignonette .. 12 bunches	3 0	6 0
Arum Lilies .. .. 12 blooms	4 0	6 0	Narcissus, various 12 bunches	0 0	0 0
Azalea .. .. 12 sprays	0 6	1 0	„ Double white 12 blooms	1 0	2 0
Bouvardias .. per bunch	0 6	1 0	Pelargoniums, per 12 trusses	0 9	1 0
Camellias .. .. 12 blooms	0 0	0 0	„ scarlet, 12 trusses	0 4	0 8
Carnations .. 12 blooms	1 0	3 0	Paeonies, various 12 blooms	1 0	2 0
Chrysanthemums 12 blooms	0 0	0 0	Ranunculus .. 12 bunches	3 0	8 0
Cowslips .. doz. bunches	0 0	0 0	Roses (indoor), per dozen	1 0	3 0
Daffodils .. 12 bunches	0 0	0 0	„ Tea .. .. dozen	0 9	2 0
Epiphyllum .. doz. blooms	0 0	0 0	„ red .. .. dozen	2 0	4 0
Encharis .. per dozen	4 0	6 0	Primroses, Yellow, dozen		
Gardenias .. 12 blooms	2 0	4 0	„ dozen bunches	0 0	0 0
Helibore .. doz. blooms	0 0	0 0	Primroses, Double White,		
Hyacinths, Roman, 12 sprays	0 0	0 0	Pyrethrum .. 12 bunches	4 0	9 0
Iris .. .. 12 bunches	9 0	18 0	Spiraea .. .. 12 sprays	0 6	1 0
Lapageria, white, 12 blooms	0 0	0 0	Stephanotis .. 12 sprays	2 0	3 0
Lapageria, red .. 12 blooms	1 0	2 0	Tropaeolum .. 12 bunches	1 0	3 0
Lilac .. .. per bunch	2 0	6 0	Tuberose .. 12 blooms	0 6	1 6
Lilium longiflorum, 12 blms.	3 0	6 0	Violets .. .. 12 bunches	0 0	0 0
Lily of the Valley, 12 sprays	0 0	0 0	„ Czar, Fr., .. bunch	0 0	0 0



#### THE FUTURE OF FARMING.

In the papers specially devoted to this subject we have called attention in general terms to the soil, manures, the economy of Nature, of practice, of time, to the importance of thorough work, the use of pure seeds, the improvement of grass land, to the reduction of rent, and the size of farms. Many other subjects present themselves to us as having an influence for good or evil upon the future of farming; but they may be dealt with more usefully in full detail, each being taken alone, and therefore we purpose bringing the general consideration of it to a close in this paper.

Success in the future as in the present, after all that can be said about it, depends more upon individual effort than anything else. A man may work hard to very little purpose if he lacks intelligence and skill for the guidance of his work, and one lesson of the depression not hard to learn is the plain fact that if any man can be a farmer it by no means follows that he will be a successful one. Farms to let are now plentiful enough; we have several, and in offering them to would-be tenants the conditions of hire are influenced by the condition of the land and the situation of the farm. In common fairness this should have weight both with landlord and tenant, and with due allowance for this, we fail to see why a really clever farmer should not make farming answer



now almost as well as heretofore. It is a popular idea that the price of Wheat should rule the rate of rent, but having regard to the yearly reduction of the area of land under Wheat, we regard this idea as a fallacy. The future of farming will witness one of two things: either the culture of Wheat will be so much improved that the result may continue to be taken as a safe guide, or the amount realised by the entire farm produce must be divided by the number of acres contained in it, and we submit that such a test would be the safe one for general adoption. To those persons intending to hire farms we would say, Do not be tempted by mere lowness of rent. We know farms that are now being offered at 6s. and 8s. an acre which we would not have rent free, for they have fallen upon the landlord's hands in deplorable condition. "Farmed out" is the term applied to them, and the term is well understood to imply both poverty and foulness, and also a probable want of drainage. If the drainage is said to be efficient, it often proves to be so much at fault as to cause serious injury to crops. We have recently been over several farms where some of the drains have become choked from some cause or other, with the serious result of a large patch of corn spoilt. We know an acre of Winter Oats so spoilt at the present time in a large field where the remainder of the crop is in excellent condition. The lesson gained by such a sight is invaluable; the land that is saturated with water being not soft, but hard and sour, the drained soil close by being soft, sweet, and mellow.

The stoppage of drains in arable land—especially in land that has fallen out of cultivation—is frequently caused by deep steam cultivation, and there is most risk of this when the drains are shallow. They are perhaps most frequently choked by foul ditches, which, having remained unscoured year after year, have an accumulation of weeds, mud, and leaves over the mouths of the drains, and we have had them quite filled by the roots of trees which grow along the pipes for a considerable distance. A main drain opened recently had the pipes filled with Elm roots running under a hard road some 40 feet wide. This leads us to mention the evil arising from an overgrowth of hedgerow timber on farms, which was probably an outcome of the easy-going prosperous days of farming. Upon asking why there were so many trees upon a farm which came upon our hands a few months ago we were told it was for the sake of appearance. Finding the farmhouse and buildings in a sadly dilapidated state we were by a judicious thinning of trees able to realise enough money to put the buildings into a thorough state of repair, and we venture to say that the appearance of the farm is now far more attractive to a practical man both as regards the condition of the buildings and the hedgerows also.

Farm homesteads are also worthy of much more attention than is given them upon many estates. There is no reason why the farmhouse and the approach to it should not be both neat and attractive; on the contrary, all that is possible should be done to make them so. But too frequently the position and arrangement of the outbuildings would appear to be the result of an accident rather than of careful forethought and well-matured plans. We know several homesteads where the windows of the house open upon the farmyard, yet this might easily be avoided without having the house far away from the buildings. A central position upon the farm with a good road to it, buildings easy of access, commodious, convenient, strong, and so connected that the whole of them may be used without difficulty, is what we require. Avoid extremes in such matters, and strive to attain the happy mean between inconvenient hovels and sheds and palatial buildings, involving an expenditure of two or three thousand pounds for a single homestead.

We neither hope nor desire to effect sweeping reforms in the farming of the future, but we would fain do what is possible to bring about improvements in culture of which so many farms are so much in need. The first step to so desirable an end is individual effort on the part of farmers at self-improvement. Might not Farmers' Clubs and Chambers

of Agriculture help in this matter? No doubt they do help in some degree by the reading of papers and discussions on practical subjects; well would it be if the meetings of such associations were confined almost solely to such sound work to the exclusion of political debates upon protection and kindred subjects.

#### WORK ON THE HOME FARM.

As the ewes are removed from the lambs for weaning the entire flock will be carefully examined, and crones or over-age ewes withdrawn from it at once to be fattened for market. This will be done by folding upon some such green crop as Tares, Trefoil, Clover, Lucerne, Mustard, or Grass, according to locality and convenience. We shall thus be doing good to the land and turning the old sheep to best account. Other ewes will be added to the flock for next season either by purchase of one-shear ewes or by drafting from other flocks. Annual attention to this is important now in order to insure a sound healthy breeding flock. Our ewes have been well fed since last October, and they are withdrawn from the lambs, somewhat low in flesh it is true, but otherwise in sound condition. If we would have fine lambs early in the season the ewes must have good food and careful treatment. Many ewes come from the lambs in such poor condition that it requires some months to render them fairly sleek. It is doubtless owing to this that breeding begins so late in many flocks. There are three ways of turning the lambs to account after weaning—they may be forced on by high feeding till the end of July or early in August, when they will have closely approached the weight and size of full grown sheep. They may be sold at once, or be kept for hoggets to be folded on roots next winter and sold in batches as they become ready for the butcher. There is still some hoeing of weeds in corn, for we keep at this as long as possible before turning to the roots. We like to get all such work finished before haymaking begins, as there is little time afterwards for it. The Mangolds have grown so fast that we hope to finish thinning and hoeing soon now. The fly has been busy among the young Swede plants, but with such favourable weather growth is quick, and we have now reason to hope we shall have no failure to record this summer. On the contrary, the whole of the crops upon our farms are in flourishing condition, giving fair promise of an abundant harvest. Growth was much retarded by a backward spring; but real summer weather effects a remarkable change in a short time among all crops. Grass for hay has much improved during the past week, and most of the late Grasses will be in bloom by the time this note is printed. Last summer we had two or three serious failures of Mustard seed, which, though only a catch crop, is an important one, as it is sown and ploughed in to impart fertility to poor soil. We have no such failure this year, for showers fell soon after the seed was sown, and the plants are growing freely. How much better this is than bare fallows we hope our readers now know full well.

#### OUR LETTER BOX.

Sowing Cattle Cabbage (*A. B. C. D.*).—The season being so much advanced you can only sow in July to have plants ready for sale by the end of September to plant out for a late spring crop, and sow in August to plant out about the end of October for a summer crop. It requires about 2 lbs. of seed to afford enough plants for an acre of land. To have strong plants make a fine seed bed on fertile soil—that in which your early Potatoes are growing will answer well—sow the seed thinly broadcast, rake in, and scatter a little fine soil over it to insure covering all the seed, or the birds will take much of it. The seed bed should be divided into plots, which can be watered without trampling upon them. Late Drumhead is the best sort for the July and August sowings. In addition to this, another season you may sow Early Sheepfold or Flockmaster in February and March to have plants ready for sale in June and July for an early autumn crop, and sow Early Drumhead in March and April for sale at the same time as Early Sheepfold for a late autumn and winter crop.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Ratio
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1886.											
June.											
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	ln.	
Sunday .....	6 29.931	57.6	51.8	N.	54.3	73.3	44.4	114.6	37.1	—	
Monday .....	7 29.910	62.8	55.8	N.	55.6	73.8	45.3	120.6	38.4	—	
Tuesday .....	8 29.921	61.8	54.0	N.E.	56.4	73.5	47.6	114.7	39.8	—	
Wednesday ..	9 29.846	58.8	54.5	E.	57.2	70.7	51.1	100.8	45.6	—	
Thursday .....	10 29.773	56.3	54.1	E.	57.2	66.8	52.1	99.2	50.2	0.252	
Friday .....	11 29.948	61.2	55.5	S.	56.3	69.2	51.6	114.8	45.2	0.019	
Saturday ....	12 29.753	61.7	55.0	S.W.	56.8	70.5	54.3	113.1	50.4	0.047	
	29.873	60.0	54.4		56.3	71.1	49.5	111.1	43.8	0.318	

#### REMARKS.

6th.—Fine and bright throughout.  
 7th.—A glorious summer day.  
 8th.—A glorious summer day.  
 9th.—Fine, but rather close and oppressive.  
 10th.—Dull morning, with spots of rain; heavy rain from noon to 1 P.M.; cloudy afternoon.  
 11th.—A fine bright pleasant day; showers in evening.  
 12th.—Fine, with alternate bright sunshine and spots of rain; heavy shower about 5 P.M.  
 As a whole a week of bright pleasant weather, with cool breezes. Temperature about 4° above that of the preceding week, and almost identical with the average.  
 —G. J. SIMONS.





24	TH	York Floral Fête (two days).
25	F	
26	S	
27	SUN	1ST SUNDAY AFTER TRINITY.
28	M	
29	TU	Royal Horticultural Society's Provincial Show at Liverpool (to July 5th).
30	W	Royal Botanic Society's Evening Fête.

### PREPARING FOR THE SHOW.

**V**ERY few persons, except those who are concerned in the arrangement of horticultural exhibitions, have any idea of the enormous labour requisite to ensure success. Exhibitors have a peculiarity especially troublesome to secretaries and flower show managers—namely, delaying their entries until the latest possible time in the first place, and secondly when the exhibition day arrives they are not always so punctual as might be desired in getting their plants or other exhibits into their allotted positions. Perhaps also someone who has engaged considerable space fails to appear, and this contingency has to be met by a hurried partial re-arrangement. The positions allotted to certain exhibitors may not give satisfaction, and with scores of other vexations the manager of a horticultural show, even on a small scale, has not an enviable post. When there are all these difficulties to contend with in an ordinary gathering, it will be readily understood that they must be increased tenfold at an exhibition of such a varied character as that which is to be opened at Liverpool next Tuesday. This is evident from the fact that there are 125 classes for plants, flowers, fruit, and vegetables, in the majority of which there will be numerous entries, each requiring a certain space to be determined before the day of exhibition; and besides this there is an extensive exhibition of implements, greenhouses, and garden appliances to be provided for, a space for boiler trials, and an exhibition of horticultural literature, plans, drawings, paintings, &c., Mr. A. F. Barron has a formidable task before him; but his long experience in the work and his well-drilled assistants, who are familiar with the admirable system adopted at South Kensington, will soon reduce affairs to order. It is particularly satisfactory to learn that the Exhibition is likely to be one that will be worthy of the Society and of the great commercial city in which it is to be held. All that is wanted is a week's fine weather, and after such a long continuance of cold a favourable change has occurred.

A brief description of the general disposition of the exhibits will serve to indicate the probable character of the Show and the way it can be best seen. The Botanic Gardens and the Wavertree Park form an extensive oblong space, bounded on the north by Edge Lane, on the east by Botanic Road, and on the west and south by the Exhibition Road, which passes the entrance to "The Shipperies." This is opposite the Botanic Garden, and as there will be an entrance to the latter at the same point, no doubt many will take that direction. A path from there leads direct across the gardens to the large marquee for plants, and to that most visitors will first direct their steps. It is an enormous canvas erection 260 feet long by 130 feet wide, and the ground has been tastefully laid out in raised mounds, upon which the plants will be arranged. Along the two sides and a portion of the ends is a narrow bank with rounded projections and bays. At the south end is a large semicircular mound, one of a similar shape, but smaller in front, and flanked by two

circles. At the opposite end of the marquee is a large irregularly margined mound and three long curving beds, while in the centre is a circle surrounded by four oblong beds, which it is intended to devote to Orchids and general collections. Every approach to formality has been avoided as far as possible, and it may be expected that this marquee will alone constitute a beautiful exhibition.

A short distance from this to the left, if the marquee is quitted at the southern end, is the tent for table decorations, and further still in the same direction is a long tent for fruit and vegetables, both of which will be well represented. Then proceeding to the south we come to the space devoted to the boiler trials, which will be sure to yield something interesting. Turning to the right from that point the cut-flower tent is reached, and then the greenhouses, implements, and appliances, which occupy an adjoining space, can be inspected, for this department is one of importance to all horticulturists. The whole of these exhibits will be arranged in the Wavertree Park, but the Botanical Gardens which adjoin will be open to all visitors.

The Exhibition will be opened to Fellows of the Society one hour before the general public on Tuesday, June 29th—namely, at 12 noon—and will be opened on each of the other days at 10 A.M. On Wednesday, the 30th inst., a conference on the nomenclature of Orchids will be held, and on Saturday, July 3rd, and Monday, July 5th, a Cottagers' and Artizans' Show will take place in the grounds.

### ROSE PROSPECTS.

WE are now on the eve of our great annual tournaments, for Canterbury leads the movement on Tuesday, the 29th, and a natural anxiety is expressed on all sides to know what are the probabilities of the season. Shall we have good shows? Are the fixtures correct? Of course each grower estimates the season by the condition of his own garden, and according as his prospects are good or the reverse, so he pronounces on the season. Not being an exhibitor, I am not perhaps subject to these disturbing elements with which the exhibitors are exercised, and as I have many opportunities of seeing and hearing about Roses in other gardens besides my own, I am not confined in my observations to any one locality.

With regard to the character of the season I think it must be a late one, although so very much depends on the weather of the next fortnight or three weeks that it is impossible to state even this possibility. I have known such weather at the end of June that Roses have come in with a rush, and what was looked upon as sure to be a late season has turned out to be an early one. But everything is late this year, and I think Roses must share in the general condition of things. I firmly believe (although some ridicule the notion) that the Rose season is later than it used to be. The last Saturday in June was considered quite late enough at one time, but few would advocate such a late date now—probably the day fixed for the National will be about right. There is indeed a very great similarity as far as my own locality is concerned between this season and last, and I find the same reports from many other localities.

As to the condition of the Roses themselves, I find a very general complaint of blind shoots—i.e., shoots without flower buds. In many places this seems to be very serious, and is generally attributed to the frost at the end of April or beginning of May; but I hardly think this is the cause. It is more likely to be, I imagine, the long, cold, dreary weather of February and March, with low temperature coming after the winter. The plants seemed to lack constitution to battle against it. Even as it occurred with "humans," so many battled through the winter well but succumbed to that spell of dreary weather, and when they might naturally have looked for something to stimulate their vigour they found themselves laid low; so I think with the Roses, and hence



the blind shoots. Personally I have experienced it in a very slight degree—indeed, if my attention had not been directed to it I should not have noticed the fact.

So far there are very few complaints of aphids. There is a popular notion in our county that the east wind is favourable to bringing fly, &c., on Hops: and if the same were to hold good with Roses we ought to have plenty of aphides, for we have had more of the easterly winds this season than I recollect. With Hops I believe the injury arises from checking the growths, and when they can get away up the poles the fly is comparatively innocuous. But this is not the case with the Rose, for it is on the soft new growth that the aphids especially delights to feast. I daresay before long we shall hear complaints of it, but at present it has not made its appearance to any extent.

Mildew, which from the alternations of temperature we might have expected, is not as yet prevalent. Here and there I hear complaints of a few plants being touched by it, but that is all. We have not had hot weather sufficient to bring it out strongly, for it is when we get hot days and cold nights that it is most likely to prevail; but if it has not appeared, I find from a well-known writer, "D. T. F.," who hails from East Anglia, and seems to suffer from most Rose evils, that there has been a plague of what he calls red rust, but which we know better as orange fungus. It is, as he justly says, very early for it to make its appearance. Some years ago I used to be terribly troubled with this pest, but it never appeared until after the bloom was past; but I have had it set in with such violence then that at the end of July my small Rose garden was as bare of foliage as in November. I tried various plans, but nothing succeeded, and for three or four years it regularly appeared; but for some years past I have not experienced its ravages. Why I know not. My Roses are in the same place, and my treatment has not varied. The only thing that is different is that there used to be a small Hop garden at the side of my garden. This has been done away with, and whether the freer circulation of air had anything to do with it or not I cannot say, but since then I have not seen it. Of all the ills that the Rose is subject to this is the most disfiguring. Mildew is bad enough, but this is ten times worse. I pity "D. T. F." to have had it so early in the season, when the wood is tender, for it must of necessity be much more injurious than when it attacks harder wood and foliage.

Of the maggot the accounts vary. In some cases he is said to be very prevalent, and as usual very mischievous, but in the majority of those gardens of which I have heard or seen there is not more than the usual quantity, and where care is taken and hand-picking sedulously attended to it ought to occasion little damage. It so soon makes its presence manifest that a little watchfulness will prevent its doing much injury.

There is no prospect of any diminution either in the number or magnitude of the Rose Shows which are to be held this year. Some have passed away, it is true, but then others have arisen to take their places. If Newcastle-under-Lyme, Wirksworth, Leek, and others have died of inanition, Henfield, Ryde, Moreton-in-the-Marsh have taken their place, and in some in a very spirited manner. Thus, one of the very best, if not the very best prize of the whole year is to be found in the schedule of the latter Society, where a prize of £10 is offered to nurserymen and amateurs for the best box in the Show irrespective of numbers. In the same way exhibitors pass away, grow tired of it, or remove their habitations to a less rosy district; but others come forward to take their place, and it is possible that we may see some new "hands" entering the lists this year. The National Rose Society has further stimulated the zeal of exhibitors by having had new dies cast for their medals, which the affiliated societies have obtained, and which will be competed for all over the kingdom.

Such are, then, our prospects; but, as I have said, the next fortnight has a great deal to answer for it. The

weather may be unpropitious and our best hopes be disappointed, or it may be fine, and then our Rose thermometer will go up, and when the exhibitions come there will be the making or marring of many a candidate for favour. Some speak as if Gloire Lyonnaise was to redeem its character, and, if not to come forth as a yellow H.P., yet to be a good exhibition Rose; then Her Majesty will have to stand the ordeal, to see whether she forfeits the high expectations that have been formed of her, and so with several others. Soon all surmises will be at an end, and let us hope that when we come to chronicle the results of the season we may be able to say that we have had a good time.—D., Deal.

### CULTIVATION OF THE STRAWBERRY.

As discussion is invited on the cultivation of Strawberries, and on varieties suitable for open air culture, I send these notes, which are founded on experience gained in gardens in several widely separated counties. As to soil, a deep calcareous loam inclining to be heavy is the most suitable, and where the land is of this description good results may be obtained without any extra care, such as is required in gardens where the soil is of a poor gravelly nature; yet good Strawberries may be grown in nearly all gardens if sufficient care be exercised in the preparation of the ground and points of culture. I have heard Mr. Douglas state that when he first went as gardener to Loxford Hall, it was pointed out to him that Strawberries and Apples were fruits that he would not be able to cultivate successfully, as the soil was not suitable, and that they never had done well, but with perseverance and high cultivation he succeeded. It was also an admitted fact that the Strawberries from those gardens were as fine as any that could be produced, and we have evidence of these facts in the prize lists of the London exhibitions in bygone days. In this particular instance fresh beds were made annually, as after the first season the plants deteriorated, although the Strawberry will bear annually for several years from the same plantation in good soils. If fine-looking fruits are required the plantation should not be allowed to remain longer than three years, and in cases where the plants show signs of deteriorating after the second year we should remove them at that time, and on poor gravelly soils every year with a good preparation, as it is possible with good culture to procure large crops annually. In no other way can that fine-looking and highly flavoured variety British Queen be brought to perfection.

Before entering on notes of culture I will give my opinion on the varieties. I believe in growing a good number of varieties, as each has its own particular flavour. In cases where young gardeners are rather doubtful which to plant my advice is to have a trial plantation of varieties of proved merit, make a selection, and act accordingly. As the Editor truly remarks, "the positions the plants occupy have an important influence on the duration of the Strawberry season, early varieties on warm borders and late sorts on northern aspects accelerating and retarding the ripening of the fruit. Varieties:—Black Prince, Early Prolific, Keens' Seedling, Sir J. Paxton, President, James Veitch, British Queen, Sir C. Napier, Unser Fritz, Dr. Hogg, Frogmore Late Pine, and Loxford Seedling. Oxonian is a good late variety, and is grown much in the West of England. I saw it the second week in August at Stoke Edith Park; it was growing on a north border. Varieties for market purposes:—Marguerite, if the market is near home this is a useful variety, as it is very prolific, with large fruits and a good blossom, but as it is rather soft it would not carry well a long distance. If the above variety is not grown, substitute for it Vicomtesse Hericart de Thury; the other two should consist of Sir Joseph Paxton and Loxford Hall Seedling. Varieties for preserving:—Black Prince, Keens' Seedling and Sir Charles Napier; either of these is good, and should be grown in quantity for the purpose. Some gardeners mix the fruit of any varieties that may be in; this I think is unwise, as many, especially of the large-fruited varieties, are not at all adapted for the purpose.

CULTURE.—In private gardens as large a quantity of produce as it is possible to get is required off a small piece of ground, and it pays to cultivate this well. As I have previously stated, the soil in many gardens is the reverse of being good for Strawberries, and it would be ridiculous to treat this the same as market growers would good ground, which it generally is when they go in for Strawberries. Good Strawberry soil requires to be well worked (judiciously of course) if good fruit is required in quantity. I have had first-class Strawberries from plants on ground that was simply dug, but then it was in what is termed good heart, and if Mr. Douglas had simply dug the ground at Loxford he would not have had such crops of fine fruit. Circumstances alter cases, and we must act accordingly. I prefer making a plantation from prepared runners at the end of July, and gather a crop the following season. Some gardeners prefer planting the



runners in beds and making the plantation in the autumn or early spring if it cannot be otherwise done, but by this means a season is lost. The ground should be well worked two spits deep, and have the bottom loosened. A dressing of manure may be given, one at the bottom of the trench and another between the top and second layer of soil. If the subsoil is not of a very good description and of a hungry nature, do not bring it to the surface, but work it over in the bottom, adding anything that may improve it, and keep the surface soil at the top. In heavy clayey soils we should keep the well-worked surface soil at the top, and improve the bottom with turf parings, decayed and burned vegetable refuse. Ground that has been well worked early in the season and has had a light crop growing on it, would not require to be trenched again, but be simply dug and levelled. In either case the ground must be worked sufficiently early that it may settle, and if it is not firm at the time of planting it should be trodden when the surface is dry.

Layer the runners as early as possible into 60-sized pots filled with four parts turfy loam to one of well pulverised manure pressed in firmly, or on pieces of turf. But this should not be used unless it is free from coarse weeds, and has been stacked some time so as to kill all vegetation. By the time the runners are established the bed must be ready for their reception. I do not agree with close planting, as if the plants grow as they should do they would be overcrowded. All the varieties I have named, except Loxford Hall Seedling, which is a compact grower and may be planted 18 inches apart, should be in rows 2 feet apart, and the same distance asunder in the rows, and between every fifth and sixth row the width may be 3 feet, which will allow room for attending to the plants without trampling amongst them. If the soil is not of a very good description, give each plant a shovelful of fresh soil, like that used for the layers, and press it around the ball firmly. A depression may be formed around each plant as a receptacle for water, which would be necessary if the season should prove dry. In summer supply water liberally if necessary, as the plants must be kept growing, and all runners should be picked off as soon as perceived. Employ the Dutch hoe, both to destroy weeds and to keep the surface open. By the end of the season the plants ought to be of good size with well formed crowns; and if the winter is likely to be severe, a top dressing of short, dry, and open manure should be applied. As the plants advance into bloom, and if the weather prove dry, they must receive a thorough watering with either rain, pond, or even sewage or weak liquid manure, and a good soaking of sewage after the fruit has set will be advisable. Just before the flowering period, and after a heavy rain or watering, mulch the bed with long stable litter if it can be procured, which will have become bleached by the time the fruit is ripe. In wet seasons, or even in dry weather if there is time, it is an excellent plan to prop up the fruit from the ground with Birch or Hazel branches. The second season's treatment will consist of removing the runners after the fruit is gathered, and clearing away the loose litter, and in the autumn a dressing of decayed manure on light soils, and a top-dressing on heavy soils, of bonemeal and wood ashes is beneficial. Weeds and runners should be removed, and in the spring treat as advised for the younger plants.—A. YOUNG.

THE Strawberry is one of the most popular fruits. It is the first ripe, is adapted for cultivation in most soils and situations, and its culture of the simplest description. Anyone, in fact, with a plot of ground may grow Strawberries, always subject to certain conditions which I will endeavour to describe as they have been observed in varied soils and situations through a period of nearly half a century.

#### SITUATION.

The Strawberry in this and other countries where found wild is an inhabitant of open woods or copses, and slopes of hills or mountains where it has the shelter of bushes, rocks, or boulders, protection from summer heat and drought by the shade of vegetation, which also affords protection in winter. The plants are never found in hollows where water lodges and stagnates; but on knolls, slopes, or ground through which water passes freely; the ground enriched by fallen decaying vegetation. In cultivation we have, however, to deal with a somewhat different plant. The Strawberry in gardens is an improved, larger, and more useful fruit. Cultivation and selection of the finest varieties has effected much, but this is had at the expense of hardiness, a consequence of cultivation. The Alpine Strawberry is not a whit more hardy under high cultivation than the choicest variety. Plants are hardy in proportion to their vigour. We must give cultivated plants more room than wild, they must have full exposure to light for the elaboration and assimilation of the increased food supplies.

The situation must be open, so that every ray of light will have effect from sunrise to sunset. Shelter is good to break the violence of winds and prevent injury to the foliage, but anything

that detracts from the plants' otherwise full exposure is inimical; shade, except for special purpose being injurious. Hedges are the best shelters, and the alleys or pathways should be alongside the hedges. The best hedge for sheltering a Strawberry plot is an espalier of 4 feet 6 inches height, formed of galvanised wire, No. 13 I.W.G., iron standards pierced for seven lines of wire, with pillar and stay at each end for straining, all galvanised and utilised with Apple and Pear trees on dwarfing stocks. Such take up no more room than a screen of Thorn, Beech, Hornbeam, or Privet, are no more trouble in trimming, and give a profitable return. Screens of this character running north and south 22 yards apart are useful shelters. Walls are the worst possible, as they shade and scorch, and the plants are not so well off as in the open, through the heat and drought incidental to such positions. Hedges appropriate the moisture and nutriment the ground affords for some distance from them, so as to render it of no value for Strawberries. To obtain early fruits plants are sometimes placed in warm borders, due regard being paid to the supply of water in dry hot weather if the plants are to be healthy and afford profitable crops. Ground sloping sharply to the south is selected for early crops, whilst that which slopes north should be chosen to afford late crops.

#### SOIL.

A strong loam is no doubt the best for Strawberries, and especially when of a limestone or oolitic nature. This more particularly applies to the Pine varieties. Any good friable loam liberally manured affords excellent crops of Strawberries. Light and shallow soils are the worst. They are too loose or too hot and dry to render the fruit equal to what it is obtained from soil of a tenacious and moisture-holding character. Very heavy soil is not good, but it may be rendered suitable by burning a part of the underlying strata or clay, and mixing it with the top ameliorated soil, and a portion of the stubborn pan. It may also be improved by dressings of ashes, and by throwing it up roughly to the ameliorating influences of the atmosphere. Dressings of lime are beneficial. Six tons per acre or a bushel per rod is a suitable dressing. Leaf soil, charred refuse, and any loose material, as old mortar rubbish, brick rubbish, &c., are excellent. They assist the percolation of water through the soil, carrying air down with it, the first consideration in making the soil's constituents available as food for plants. In dealing with heavy soils, it is well to loosen the stubborn pan and leave it at the bottom of the trench than to bring a quantity to the surface. Endeavour to retain all the better soil however thin, and add to it by bringing up a little of the poor material at a time, increasing the depth by loosening the stubborn material.

Light soils are improved for any crop by a dressing of clay. A sandy soil on which Strawberries were a precarious crop, was made into a good one by a coating of marly clay at the rate of 100 cartloads per acre. This was applied in winter, thrown about, and dug in early in spring. Shallow soils may be stirred as deeply as we like, but there must not be any attempt at bringing any of the brash to the surface. Clay dressings should always be given on the surface, for clay, like lime, sinks deeper. Lime, or preferably chalk, through holding moisture is an advantageous dressing for light soils, and may be applied at the rate of 20 tons per acre. Gravelly soils require clay. Heavy loams, ditch scourings, and pond cleanings are admirable dressings for light soil—anything, in fact, that increases the depth and is of a moisture-holding character is suitable. Lose no opportunity of bringing in fresh loam, particularly of a heavy nature, for light soils; and road scrapings will improve heavy soils through furnishing the grit they are usually deficient in, and give increased friability.

#### PREPARING THE SOIL.

The soil, whatever it may be, should be stirred as deeply as the good soil allows. Trench just as deeply as there is soil, and loosen the undersoil as much as possible, the deeper the better, but bring none or very little of it to the surface. If manure is required, do not waste it by placing it at the bottom of the trenches. Keep it within a foot from the surface. Ground that has long been under crops and has a rich surface will be the better for trenching, turning the top soil to the bottom and bringing good soil to the surface. This will only need a liberal dressing of manure and exposure to the atmosphere. Peaty soils should have a dressing of lime, and preferably of a magnesian character. Six tons per acre is a suitable quantity. Alluvial soils are the better for a dressing of non-magnesian lime. Soils that have been long under crop and have become full of manure may have a dressing of lime at the rate of 3 tons per acre. Lime should always be used on the surface and only pointed in.

Soil in good heart will not require any manure, it having been manured for the previous crop, but if the crop was an exhausting



one and the ground only fairly good, a liberal dressing of farm-yard manure should be given. Twelve to twenty cartloads per acre is a suitable dressing for land ordinarily cultivated and cropped. Poor soil should have proportionately heavier dressings. It should be dug or ploughed in. Dress ground much infested with slugs with nitrate of soda 1 lb. per rod ( $30\frac{1}{4}$  square yards), or  $1\frac{1}{2}$  cwt. per acre, distributed evenly over the surface prior to planting. Land infested by wireworms may have a dressing of gas lime at the rate of 20 bushels per acre pointed in a little before planting.

#### LAYERING RUNNERS.

Runners of the current or previous year, if spring planting is practised, are the only suitable ones. They are best taken from plantations that have been made in the previous year, and are consequently only a year old. Such afford the earliest and strongest runners, and they have the sturdiest and most solidified growth through their having the advantage of more space than is accorded runners in older plantations, through the parent plants being of smaller size. The runners are best layered in small pots, small 60's or 3-inch; a double or single row of pots as runners are available, being placed midway between the rows and about half plunged, so as to keep the pots steady and insure more uniform moisture. Any good loam will answer for filling the pots, preferably rather rough turfy loam, with a fifth of well-decayed manure intermixed, and a quart each of bonemeal and soot per bushel of soil. Drainage for the pots is not necessary, and the soil need only be made moderately firm in the pots, a space of about half an inch being left for watering. A slight indent is made in the centre of the soil, a runner is placed therein, and secured with a peg. The best is formed of galvanised wire cut about 3 inches long and doubled, but a bamboo cane cut into lengths of 4 inches, split roughly and thrown into water for a few days, can be split with a knife into match-like strips, and these doubled form admirable pegs. They bend readily whilst moist. A small stone may be placed on each runner wire to keep it in position, but these are not nearly so good as the pegs. Cut off the points of each runner wire just beyond the plantlet, unless the variety is a scarce one, when it may be allowed to grow so as to get as many plants as possible. Supply water as necessary, and the runners will be well rooted in about three weeks; but it is well to leave them on the parent plants until the pots are filled with roots, and yet not allowing them to remain until they are very closely matted. They will be well rooted in three weeks to a month or never. Detach and remove them to a north border and keep them moist if the ground is not ready, but the sooner they are planted the better, as they only become stunted through keeping them in the pots. Layering in pots is a troublesome plan; but nothing can be done without labour. Turves  $2\frac{1}{2}$  to 3 inches thick, 4 inches wide, and a foot long, inserted half their depth grass side downwards are a good substitute, and are by some considered better than layering in pots. The runners are layered on the turf about 4 inches apart, or 2 inches from the ends of the pieces of turf, and then 4 inches apart as regards the others. If kept moist they will root quickly, and the turves have only to be divided between the runners. This plan even may be too troublesome in some cases, or neither pots nor turf can be had. Layer them in the soil in this case. They will root as quickly as those in pots or on turf if kept moist, and lifted with roots they are admirable for home planting, only keep them as much from the drying influences of the atmosphere as possible, choosing a dull time for planting.

Runners should only be taken from fruitful plants. It is a common occurrence for apparently healthy and at one time fruitful plants to become sterile. Sterile or meagre-fruited plants give the strongest and most runners, and they are selected for sending out and planting. Such are not worth having. They are never to be relied upon, therefore take runners from fruitful healthy plants only.

Nothing pays so well in Strawberry cultivation as a careful selection of plant and a change. Whether the plants get sick of the soil, the climate, or treatment it is difficult to tell. The only thing to guard against is the unfruitful plants, and that can only be ensured by asking for a guarantee. If that is forthcoming a year's growth will soon set things right, for it is not possible to grow Strawberries a year, they being planted in July or August, without proving whether they are fruitful or sterile.

#### PLANTING.

The ground being prepared as advised in the previous autumn or spring (winter is the worst time to work land, or any time when saturated with wet), a crop of early Potatoes may be taken, or preferably Peas—any crop, in fact, that will allow the needful preparation of the ground, which in most cases will only amount to forking, either without or after manuring. If the ground be

light or rough from clods tread it, especially where the rows are to be, but it must not be practised in wet weather. The rows should be 30 inches asunder and 30 inches apart in the rows. This I have found the most suitable for plants that are to remain for any length of time, the plants being put out half the distance asunder in the rows, every alternate plant being cut out directly after the first year's fruiting. In rich deep loam 3 feet apart for the rows and 18 inches asunder in the rows the first year; every other plant being taken out after the first year's crop is gathered is not too much room for the strong growing sorts. For general purposes I prefer the plants in bed-like arrangements for facility of gathering the fruit and cultural requirements. The strong growers in rows 30 inches apart, and the plants 15 inches asunder in the rows the first year and 30 inches the second, leaving a space of 42 inches between every two rows. Moderate growers in rows 24 inches apart, 12 inches the first year and 24 inches the second asunder in the rows, with a yard space between every two rows. Closer planting is not advisable.

Plant just level with the neck so as to cover the roots, and firm the soil about each plant with the feet. If the plants are slightly raised it is better than burying the centre or crown; indeed, that should never be practised. A little care at planting is worth a good many after considerations. Supply water at once to settle the soil about the roots and repeat as necessary. Moist weather is the time to plant. The earlier the runners can be planted the better, which will depend of course on the season, but the middle of July to early August is usually the summer planting season.

Sometimes planting has to be deferred until autumn through the ground not being cleared of other crops, or not cleaned and prepared for earlier planting. September or early October is the latest Strawberry plants should be put out, so that they will have a chance to root and become established before cold weather comes. Spring planting is best effected by taking up the runners when well rooted, and placing them in beds 6 inches apart every way, the beds being of the orthodox width—viz., 4 feet, with 1 foot alleys between them, watering as necessary and keeping them free from weeds. In February or March, as soon as the ground is in good working order, they can be transferred with roots to their permanent quarters, watering if the weather be dry. The best time to plant is when they are starting into fresh growth.—G. ABBEY.

(To be continued.)

#### CHRYSANTEMUMS AND THEIR CULTURE.

(Continued from page 485.)

##### TERMINAL BUD.

A TERMINAL bud is thus named because it is the apex of growth, no other growths starting and growing beyond it like those from crown buds. Terminal buds are the best to depend on for the production of flowers from bush plants and those grown for late use. This bud is not much appreciated by growers of plants for large blooms, because the flowers from buds so formed are much too small except in a few instances. In the north of England terminal buds are formed too late to be of any use for exhibition stands, and for anything else except for late decorative purposes. From few sorts can good flowers be had from these buds even in the southern counties, and practically none in the north. The only varieties I know that are to be depended upon to produce good blooms from terminals are Emily Dale and Sir Stafford Carey. Mr. Bunn, Prince Alfred, and Lord Wolseley often develop flowers of good quality from this bud. This occurs when the crown buds form earlier than the dates previously named for these particular sorts. In that case the crown bud is rubbed out and the growths allowed to extend. Flowers from terminal growths are very compact, but lack the size and solidity of those grown from crown buds, and are not formed early enough for the flowers to be developed in time for the shows except in the cases mentioned. Terminal buds form in a general way in the south from the middle to the end of September, and some even as late as the middle of October, but in northern parts they are not formed till the last-named date. The buds are formed in this way: If the cultivator does not wish to allow the plant or plants to bloom from the crown buds, which are sometimes damaged through various causes, the crown bud is cut off, and the growth shoots which start just below that point are allowed to extend. They in time produce terminal buds. The annexed engraving (fig. 92) represents a terminal growth with buds which was taken late in the season, the side buds having grown slightly too long before being disbudded. As shown by dotted lines, all the flower buds except the centre one at the top are intended to be cut off. This should be done at the earliest opportunity when the centre bud can be plainly distinguished from the side ones, which in their early stages cluster close around the



centre one, and if the attempt to take them off is made too soon the principal one is sometimes damaged in consequence. A small penknife answers best for the speedy and safe removal of the buds. When the plants are grown for decorative or late-blooming purposes the number of flowers retained on each stem must be ruled by the object the cultivator has in view. It should be borne in mind that the centre bud always develops into the largest flower. Useful flowers for cutting may be had from the side buds when a larger number are required.

#### DEFORMED BUDS.

Deformed buds in some seasons are very numerous, and growers of Chrysanthemums are often perplexed as to the cause of such growth. These buds swell to a large size, and instead of unfolding their florets in an even manner they split in unequal parts and become forked and irregular in form. Another kind of deformity



Fig. 92.—Terminal Bud.

is perhaps worse than the preceding one. The buds swell to a large and sometimes unusual size. The hopes of the cultivator are raised at the prospect of extra large flowers. As time goes on and the florets begin to unfold, it is seen that the flower has a confused centre, or, more properly speaking, it has many centres. The florets, instead of all incurving in a central direction, unfold in different ways. In consequence of such deformity the flower is useless. It is difficult to account for such growth taking place in all cases. No doubt it is caused by a check to growth at some stage in the development of the flower bud. The incurved varieties are more liable to produce such unnatural flowers than the Japanese varieties, and more particularly the Queen family is troublesome in this respect, notably Golden Queen of England. The most frequent cause is the "taking of the buds" at too early a period. Sometimes the flower buds will form quite a month earlier than is required. These, if allowed to remain, will produce blooms of the kind I have described. Again, if the plants have been potted in too light a manner—the soil not pressed sufficiently hard into the pot at the final potting—under these circumstances the necessary hard growth required for the production of perfectly formed

flowers is not acquired. The result from such mismanaged operations in potting is abortive blossoms. Flowers of a deformed character are often produced after a very hot and dry summer, consequent upon the plants not at all times receiving the necessary quantity of water at the roots, more particularly after the flower buds are formed. This lack of natural requirements must give a check in some way; therefore I would impress upon all growers never to allow the plants to suffer in this respect. Another reason which causes plants to develop such deformities is when they have been potted in too rich soil and during their growth are fed too highly with strong stimulants, thus causing the growths to be soft, and such growth cannot ripen sufficiently. Some growers think the plants cannot be grown too robustly, but that is a mistake. Strong growth is required, but it must be built up gradually and firmly.

#### REMOVING SUCKERS.

Suckers or offshoots springing from the base of the plants which are grown for any purpose are produced freely from most varieties, still there are some varieties which are shy in throwing up suckers. In all cases if they were allowed to grow they would rob the plants of some strength which should be utilised in a much better manner until the flowers are being produced; after that period no harm is done by allowing the suckers to extend for the production of cuttings. Until the time stated remove all suckers as they appear above the soil. There is a right and a wrong way of performing this trifling operation. Much harm may be done to the plants by allowing a person to do it carelessly. I once learnt a lesson by allowing the removal of the suckers to be done in the wrong way. The regular attendant to the plants being very much pressed for time a youth was set to do this; to facilitate his work he used a long knife and cut the shoots clean out, some of them to a depth of 3 inches under the soil. This, of course, included many roots which grow from the bottom of the suckers, and a considerable check was given to the plants. In careful hands a knife may be used with advantage to cut off the suckers, but the safest manner to remove them is to break them off with the finger and thumb.—E. MOLYNEUX.

#### A CHAPTER ON CELERY.

THERE is no more important vegetable crop than Celery. It is extensively grown in all large gardens, it finds a place in the majority of middle-sized ones, and many cottagers grow it. It plays an important part in cookery, is an excellent salad, and its uses extend beyond this. In large gardens gardeners soon find out that it will not do to treat so important a crop carelessly, and it is very well grown in them as a rule, but amateurs are not always so successful. Some of them raise plants with much care and look well after them until they are put out in the trenches, when watering or earthing up is neglected, and what with proper and due attention might have been excellent Celery is the reverse.

Celery is by no means difficult to cultivate, but it will not bear neglect. It does not need daily attention, but at certain times it requires the performance of a few operations, which are simple in their execution and satisfactory in results. It is attending to it at one time and neglecting it at another, or carrying out one operation and omitting the next, that spoils the crop. It is of much importance that strong healthy young plants be secured before placing them into the trenches. When early plants are wanted to put out in May and be ready for use in August, the seed must be sown in a warm place under glass in March, the plants must be sown in heat until they are several inches in height, and in hardening off they must be treated in much the same way as the half-hardy bedding plants which are put into our flower beds in summer. We plant out about 500 Celery as the earliest batch, these are all raised in heat. The seed is sown in one or two 6-inch pots. The plants are dibbled into cutting boxes as soon as they can be handled. In these they are placed about 2 inches or 2½ inches apart, and they remain in them until they are planted in the trenches. We approve of shallow boxes for young Celery plants as they are convenient to move. In dealing with young plants under glass there is always a danger of their becoming drawn. This may occur by the plants being too close in the seed pots, or through being in too high a temperature and far away from the glass and light. All of these conditions will spoil the plants in a great measure, and they should be avoided. Dwarf plants are particularly desirable. In sowing the seed it is of the utmost importance that the soil in the pots be made firm. In transferring the small plants to boxes, or anywhere else, the soil should also be made very firm. Some weeks ago one of our young men in planting Celery in boxes omitted to press the soil firmly. Another putting them in a few



days afterwards made the soil as firm as he could ram it. When looking over the boxes some weeks afterwards, the great difference in the size of the young Celery plants was very noticeable, the inferior plants being in the light soil. Firm soil is always sweeter than loose material, and the roots produced in the former are more numerous, robust, and close-growing than in the open soil.

Early plants which have been raised in a vinery or Cucumber pit should be placed in a cool frame with the lights on after being brought from the house. In a short time the lights may be removed during the day, then at night, and finally planted out. We have just finished planting our early Celery. From the time the young plants appear until they are placed in the trenches they should not on any account be allowed to suffer for one moment from dryness at the roots, and just before planting they should be drenched, so that the soil may adhere to the roots in quantity. Before planting, however, trenches must be made for the reception of the plants. These may be made in much the same way for both early and late plants. When we want to grow Celery for exhibition and prizetaking, we only put one row in a trench. When it is merely for the requirements of the kitchen or use in the pantry, we grow from two to five rows in a trench. The trenches for the single rows are made from 1 foot to 18 inches wide, and a space of 2½ feet or 3 feet is left between them. The latter are thrown out to a depth of from 8 inches to 1 foot, and the soil is banked up on the wider space between. This is certainly a good deal of space for Celery, but large plants cannot be grown in small space, and we always like to allow of plenty of space for earthing and other attentions. In the case of wide trenches for several rows we allow about 8 inches to each row, a trench for two rows being 2 feet wide and one for six rows 4 feet. The same space is allowed between the trenches, and this holds all the soil that is thrown out in reserve for earthing. We have tried trenches from 6 inches to 18 inches in depth, and the medium ones have given most satisfaction. Our kitchen garden extends to five acres, and during the last dozen years we have tried the Celery crop in various parts of it. In the heaviest soil very large plants were produced, but three parts of them were not sound when fully grown. They appeared all right, but when the stems were pressed hard they gave way and proved pithy or vacant in the centre. Much Celery does this, and it is most objectionable. Such produce may do for seasoning in the kitchen, but it will never do for introducing with cheese or anything in this way, and those who have grown pithy Celery ought to change their practice at once. We had to do so from the heavy ground, and we found it succeed best in light soil. For more than six years we have grown the whole of our Celery in the lightest part of the garden, and pithy plants are never met with. Every one of them are sound and robust, and we are very much gratified with this. The advantage of having it in rather a light soil is not confined to how it grows, but in earthing up the light material suits admirably. A soil half sand or half ashes is excellent for earthing up. The worms do not work in it much, and it blanches the stems beautifully. We do not change our soil for Celery, it is grown on the same piece year after year, and will be so as long as it turns out as good as it has done. Agree, then, to make the trenches on the lightest of soil in the garden and get them ready. We always form our trenches in March or April, that we may use the ridges and plant them with Lettuce, Spinach, or other quick-growing crop that will gain maturity and be cleared away by the time the plants require earthing up.

The question of manure comes next. After trying all sorts, natural and artificial, we prefer that from earth closets to any. It is astonishing how very well this suits Celery, and the plants it produces are first rate. The way we apply it is this. Dry soil is mixed with it; as it is taken out it is spread along the bottom of the trench to the depth of 4 inches, then it is forked in, and after that a layer of good soil and old Mushroom bed refuse or something of that sort is spread on to the depth of about 3 inches, and the Celery is planted in this. It is some little time in finding its way into the manure that has been forked down into the bottom, but when it does it makes astonishing progress. In planting, each one is lifted very carefully, and the hole for the roots is made large enough to admit them without any cramming into a small space. As soon as the soil is put back, and when the Celery has been planted, the soil is trodden down as firmly as it is possible to make it, then the plants are watered thoroughly. Should the weather be dry it is watered again in a few days, and in a fortnight or so the soil is again trodden and watered. The plants, we find, root much better and grow more quickly when the soil is firm in the trenches than when quite loose, and we attach very great importance to having the soil firm. The early batch should be put out in the way indicated at once; and those who wish to

possess late plants, as well as others who have no means of raising them in a hothouse, should give them attention now. If any rough frame is nailed together and put down in a warm corner, and the interior filled with lawn mowings, leaves, manure from the stable or pigsty, a slight hotbed will be the result, and if the seed is sown very thinly on this the young plants will soon appear, and by thinning out some of them the bulk may remain until transferred to the trenches. A quantity of rich soil should be spread over the manure in which to sow the seed, remembering to make it firm, and if this seed is sown by the middle of May the plants will be ready for the trenches by the end of June or early in July. This represents the case of those who have no glass in their gardens. Where there is a frame or glass house of any sort, the pot system of sowing the seed should be practised for main crop or late plants, and as soon as they can be handled make up the slight hotbed and plant them on the top of this for a few weeks. They need not be protected on the top, and if put in about 2 inches apart in good rich firm soil they will soon make excellent dwarf plants. As a rule, there is never enough rain at the time Celery is planted to dispense altogether with artificial watering, and this should be practised very frequently until the plants have been earthed up once, when the extra soil put on the top of the roots in doing this will keep them cool and moist.

Premature seeding is a fault often experienced in Celery culture, especially during the early stages of its growth; but for years past we have not lost a plant in a thousand from this cause, and we attribute this success to the firmness of the soil in which the roots are growing and never allowing them to suffer or be checked by want of water. It is only careless culture and neglect that cause plants to "bolt." Where watering cannot have the attention it requires in very dry weather the surface of the soil between the plants should be mulched over with short manure to prevent evaporation and keep the roots cool. Celery planted in May will require earthing up early in July, but this is an important operation often neglected, especially in small gardens. When the plants are not earthed they spread out, and the largest of the leaves are apt to weigh down and break over. The first and second earthings would prevent this, and they at least should be applied. We begin earthing when the plants are about 1 foot in height. The smallest of the side leaves are taken off before beginning to add any soil, and the earth is broken very fine before putting it amongst the plants. It is pressed firmly round each with the hands, and when all is put round it is trodden down with the feet. The main point to avoid in earthing is never to allow any of the soil to fall into the centre of the plants. A piece of matting tied round each plant before earthing will generally prevent this. When we wish to secure sticks of unusual quality we earth them with finely sifted coal ashes mixed with light soil and a little lime.

—A KITCHEN GARDENER.

## ORCHID NOMENCLATURE.

It has been announced that a part of the programme of the Royal Horticultural Society at the Liverpool Show will be a conference of orchidists respecting nomenclature, and as this is likely to be of some importance a few preliminary observations may be appropriate.

No official statement has been made as to what is the special object of the Conference, but it may be assumed that it is intended to point out the defects of the present system and to substitute some preferable method, or to draw up regulations to guide those who name Orchids. There is plenty of room for the improvement of horticultural nomenclature generally, and in the case of the Daffodils the consideration given to the subject by the committee appointed for the purpose has had good results. It may, therefore, be hoped that something equally satisfactory will follow the Orchid Conference, but the subject is a more difficult one, and last year no progress was made in the matter. Mr. W. Lee and Mr. Harvey then thought that nothing could be done without the presence of Professor Reichenbach. Mr. F. W. Burbidge, Mr. R. I. Lynch, and Mr. James O'Brien were of opinion that the subject might be discussed by the Conference committee, but it was ultimately agreed that the question should be deferred. The assistance and opinion of the great orchidist would undoubtedly be most valuable in deciding what course to take, but in his unavoidable absence the committee must depend upon themselves, and there is no reason why they should not at least be able to clear away some difficulties.

The general system of nomenclature in the Orchid family should be formed in a similar manner to that adopted for other plants, which is now clearly defined and accepted by most botanists. The best and most authoritative exposition of this subject is to be found in the "Lois de la Nomenclature Botanique," by M. Alphonse De Candolle,



of which an English translation was prepared by Dr. H. A. Weddell and published by L. Reeve & Co., Covent Garden. The rules given in this treatise were adopted at the International Botanical Congress in Paris, August 1867, when there were about 150 botanists present, and they, therefore, represent the opinions of the principal European authorities. Commenting upon the necessity for some recognised system, M. De Candolle refers to the enormous number of synonyms which had gradually accumulated. Thus in Steudel's "Nomenclator" for 1821 "there were 55 synonyms for every 100 admitted species. The second edition of 1840 gives the proportion of 75 to 100," and the index to De Candolle's "Prodromus" a few years later gives 102 synonyms for every 100 accepted species. This is alarming, and affairs are not much better amongst the Orchids; but it will be beyond the power of the committee to rectify evils of this character, though they could impose some restrictions upon the names to be given to new species or varieties. Two introductory rules in the treatise already mentioned are the following, and are well worth attention:—"The rules of nomenclature should neither be arbitrary nor imposed by authority. They must be founded on considerations clear and forcible enough for everyone to comprehend and be disposed to accept. The essential point in nomenclature is to avoid or to reject the use of form or names that may create error or ambiguity, or throw confusion into science." The former of these rules all will accept, and the latter as applied to Orchids will probably constitute the chief subject of discussion. Sometimes in making alterations with a view to rectify previous errors the difficulties are only increased, and it behoves all who propose the abolishment of names that have been generally accepted, to have good reason for the course advocated. "No one," says M. De Candolle, "ought to change a name or a combination of names without serious motives derived from a more profound knowledge of facts," and again, "No one is authorised to change a name because it is badly chosen or disagreeable, or another is preferable or better known, or for any other motive either contestable or of little import." In the bestowal of names upon new species or varieties, however, the matter is different. All these points should be borne in mind. The name selected should not be too long or difficult to pronounce, it should not be adopted "from a barbarous tongue," and it should "in general indicate something of the appearance, the characters, the origin, the history, or the properties of the species. If derived from the name of a person it usually calls to mind the name of him who discovered or described it, or who may have been otherwise concerned with it." A glance at any list of Orchids will show how little these rules have been regarded in their nomenclature. Such names as *Vrydagzenia* and *Wulschlaegelia* have little to recommend them, though happily that is of no consequence to horticulturists, as the plants bearing these titles are at present confined to the care of botanists. The desire to honour various persons by bestowing their names upon Orchids appears also to have become very general, for we find that over 600 species and varieties of the Orchids in cultivation bear the names of individuals who have possibly distinguished themselves in some way, though not always by discovering, describing, figuring, or studying the plants with which they are associated. Yet M. De Candolle considers one or more of these qualifications necessary to render a person worthy of the honour. The Conference might well give some attention to this matter, and a decision restricting these honorary designations within reasonable limits would be a valuable service.

The species must, in a great measure, be left to the botanists. Only those fully competent, with ample material for reference, should attempt to bestow new specific names upon fresh introductions. Horticulturists have, however, to deal with a great number of varieties, and it is in regard to these that the chief difficulties are now experienced in naming Orchids. Botanically, many species admit of several sub-divisions, each bearing its proper title, but in horticulture this is occasionally inconvenient, and leads to a multiplication of names that is almost overwhelming, as is seen in the titles of some varieties of British Ferns. Amongst such plants as Roses, Pelargoniums, Dahlias, Carnations, Auriculas, &c., which have been very popular in British gardens, and are increased in numbers from seed, botanical names have been discontinued, and English or local designations adopted instead—a plan well adapted to their case, as it is also to the garden forms of Daffodils and any other plants that are similarly readily increased from seed. This is quite in accord with the "Laws of Botanical Nomenclature," for it is there stated that "Seedlings, half-breeds of uncertain origin, and sports, should receive from horticulturists fancy names in common language, as distinct as possible from the Latin names of species and varieties." Of late, however, an attempt has been made to use the "fancy names" for varieties of Orchids, and it requires very careful consideration before giving support to a practice that is open to several objections under such different circumstances. The *Cattleyas*, the *Lælias*, the *Odontoglossums*, and the *Masdevallias* are the most prolific of these puzzling varieties, but it must be remembered that all these are intro-

ductions, none is of garden origin except the home-raised hybrids, concerning which there is no difficulty. Take for example *Cattleyas Mendeli*, *Mossiae*, and *Trianae*, every importation of these contains forms differing in some points from others, and it is almost impossible to find two plants precisely alike. Sometimes the differences are considerable, and then a really distinct variety is worthy of a name which has previously been bestowed in accordance with botanical usage, mostly Latin adjectives indicating some particular quality of size or colour. In some trade collections only the choicest are thus distinguished, and the relative merits of other forms not sufficiently well marked to merit a name are indicated by crosses on the labels. The same may be said of *Odontoglossums crispum*, *Pescatorei*, *cirrhosum*, and others, the very finest forms of which are only honoured with names. If this were adopted there would be no danger of names becoming too cumbrous or troublesome, and it is quite within the province of the Floral Committee of the Royal Horticultural Society to refuse to award certificates to plants bearing objectionable names. On the other hand, if these "fancy names" are admitted there is a danger that we shall be flooded with personal designations, "Souvenirs," &c., like those applied to Roses and Chrysanthemums, and which will be given to varieties of quite a different classificatory value. As regards the last named plants, for instance, Chrysanthemum Mrs. George Rundle is sufficient, so is Rose A. K. Williams; but Orchid Duke of Marlborough is not sufficient to distinguish the plant, and we have to say or write the full title *Cattleya Mendeli* Duke of Marlborough, for which at least the merit of brevity cannot be claimed. Further, the "fancy names" indicate that the plants are of garden origin, whereas the Orchids are simply wildlings, and as much entitled to be considered botanical varieties as many other plants. There is another point to be considered, and that is that some scores of varieties have already received botanical names of the ordinary character. If the "fancy name" system be adopted, to render it consistent these ought to be abolished and others substituted, otherwise we should have a strange mixture of titles applied to forms of one species of equal value.

Hybrids are usually indicated by a cross placed before the generic name, but the method advocated in "The Laws" is far the best for showing the origin of the plant when this is known; thus *Amaryllis vittata-reginae*, which indicates that it has been raised from *A. reginae* fertilised by *A. vittata*.—L. CASTLE.



At a general meeting of the ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W., held June 22nd, Charles Noble, Esq., in the chair, the following candidates were unanimously elected—viz., Hamilton Gordon, Luigi Ricci, and Robert Thomson.

— A CORRESPONDENT writes in reference to the PROVINCIAL SHOW OF THE ROYAL HORTICULTURAL SOCIETY:—"Those of your readers who intend visiting Liverpool next week and desire to see some of the grandest railway scenery in England should, as far as may be convenient try the Peak route through Derbyshire, the Midland Company's line and gardeners who desire to see Chatsworth will find Rowsley station the most convenient.

— WE have received from Mr. Laxton of Girtford, Bedfordshire (the successful originator of many fruits and vegetables) fruit of NOBLE, an early Strawberry remarkable for size and excellence. The fruit is very large, 2½ inches in diameter, ovate in shape, and slightly corrugated. The skin is smooth, strewed with small seeds on the surface, shining and dark red in colour. Flesh deep crimson, rather soft in texture, briskly flavoured, and of good quality. This is a very handsome fruit. It was raised by Mr. Laxton from Forman's Excelsior, is very early, coming in three days after King of the Earlies, is a vigorous grower, hardy, and a free bearer, producing few small fruit.

— IT appears that though the season is so late, RHODODENDRONS flowered about their usual time—at least, such was the case with Mr. M'Intosh's great collection at Dunevan. Calling there a week ago, practically all the flowers were faded, the freshest of all then remaining being Warrior. Nor has there been the usual marked difference between the early and late sorts as to time of expansion, but all seem to have practically opened together, and the display has been on the whole excel-



lent. The Liliams amongst them are now advancing; they are not so tall as usual owing to the cold weather, but sturdy and promising to flower well, *L. Krameri* having nine buds on one stem, a number that we do not remember having hitherto observed. Though Mr. Mcintosh's health is very far from being such as his many friends desire, they will be glad to hear that he has been able to enjoy his garden of late when the weather was favourable for outdoor exercise.

— A CORRESPONDENT, "J. W. H.," desires to be informed as to the best way of PRESERVING PEACHES in their whole state, and as near ripe as possible. If there is any other than the ordinary way of bottling them, he will be glad to have particulars. We will readily publish any information on this subject that may be sent for that purpose.

— THE second edition of the OFFICIAL GUIDE TO THE MUSEUMS OF ECONOMIC BOTANY, ROYAL GARDENS, KEW, has just been issued. It is devoted to the Dicotyledons and Gymnosperms, the guide to the Monocotyledons, which are grouped in No. 2 museum, not having been prepared yet. This issue has been revised and increased by the addition of twenty pages, giving a variety of information relating to the uses and properties of plants.

— "A." writes—"The late MR. R. KYRKE PENSON of Denham House, Ludlow, who died May 22nd, aged seventy, was well known as one of the National Auricula and Carnation Society's supporters, also as a grower and exhibitor of Auriculas, but to the horticultural world he was less generally known as a professional architect and an able landscape artist. Some of his pictures have been exhibited in London, and gained him considerable reputation."

— BEDS of the very fine variety *VIOLA QUEEN OF LILACS* are now in full beauty at the Botanic Gardens, Birmingham, in the *Viola* garden, where it shows how superior it is to the old "Blue Bell" for bedding. It is a stronger grower, of excellent habit, with larger flowers and brighter colours, and of sound constitution, as it will stand very hot summers and very severe winters. It is one of Mr. W. Dean's many fine seedling varieties sent out a few years since.

— "W. T." sends the following note on BLACKBIRDS:—"In a garden near me at The Cottage, Mount Vernon, a pair of blackbirds built their nest early in January amongst the Ivy near the kitchen window, from which the birds were regularly fed. Notwithstanding the inclement season, the fifth brood was hatched out end of May. In the same garden I observed rather novel-looking borders, composed of champagne hottles turned upside down. A hole was broken in the bottom of the bottle with a chisel, then filled with earth, in which were planted *Sedums*, *Saxifragas*, *Echeverias*, &c. They looked pretty in woods and round rockeries when placed in a diversified manner."

— MASDEVALLIAS FOR BUTTONHOLES, &c.—"W. D." writes:—"I think the varieties of *M. Hairyana* will before long become prominent features for decorative work, for they are so easy of cultivation, are such profuse bloomers, and are so very beautiful in the richness and variety of colours, that before long we shall find it a Covent Garden plant, and in great demand in a cut state, for they can be kept in good condition so long after they are cut. At the recent Orchid Exhibition at the Botanic Gardens, Birmingham, a special class for *Masdevallias* brought out a beautiful display; and just now Mr. Latham has in the Botanic Gardens a number in bloom. When the market growers take this plant in hand, as they will do by-and-by, it will become one of our most popular decorative indoor plants."

— THE time has now arrived when an estimate may be made of the FRUIT CROP IN KENT. Red and Black Currants have thinned lately through the cold east winds; the Dutch Blacks are the best. Cherries a large crop, but dropping. Plums and Damsons will be an average crop. Apples and Nuts are very short, and are much infested with maggot and caterpillar. Gooseberries are plentiful and cheap, Apples scarce, Pears fair. Owing to the general depression in agriculture and trade Kentish fruit-growers do not look forward very confidently to realising good prices for their produce.

— THE monthly meeting of the BELGIAN HORTICULTURISTS was held in Ghent on the 14th inst., those present comprising MM. Blancaert, Arth. Desmet, Louis Desmet-Duvivier, V. Cuvelier, Bernard Spae, Moens, A. Rosseel, Edm. Vervae, Ch. Van Geert, and J. Cloisin; M. James Bray presiding and M. Alex. Dallière was Secretary. Certificates of merit were awarded for *Fagus atropurpurea tricolor*, from M. Ed. Pynaert-Van

Geert; *Pandanus discolor*, shown in flower for the first time on the Continent by MM. Jacob Makoy & Cie. of Liege; *Masdevallia macrantha*, from M. Aug. Van Geert; *Cypripedium grande* and *Cattleya Mossiae*, from M. Jules Hye-Leysen; *Odontoglossum Pescatorei* var. and *Vanda insignis*, from MM. Vervae & Cie.; *Samolus canadensis filicifolia*, from M. Ch. Van Geert, d'Anvers. A cultural certificate was awarded for *Odontoglossum vexillarium*, from M. L. Desmet-Duvivier, and honourable mention for *Caragana sanguinea*, from MM. Jacob Makoy & Cie. of Liege; *Elaeodendron (Aralia) Chabrieri*, from M. Ed. Pynaert-Van Geert; *Pavetta montana*, from M. Desmet-Duvivier; *Phoenix senegalensis*, from M. Bernard Spae; *Croton Gladstonei*, from M. Alex. Dallière; *Ceanothus americana flore pleno*, from MM. Fr. Deshois & Cie.; *Sobralia macrantha nana*, from M. Aug. Van Geert; *Cattleya Mossiae* var., from MM. Vervae & Cie.

— MR. B. S. WILLIAMS' EXHIBITION OF ORCHIDS at the Victoria and Paradise Nursery, Upper Holloway, still continues very attractive, the fine plants of *Laelia purpurata* making a handsome display. *Cypripediums* also add considerably to the number of flowers, *C. superbiens* being beautifully represented by well-grown plants with large flowers, the dorsal sepal regularly striped with green, and the petals bearing numerous dots. The white and useful *Dendrobium Dearei* is in capital condition, one exceptionally fine plant having twelve racemes of four and five flowers each. As these flowers last well when cut the plant is likely to become a favourite wherever white flowers are in request. The white *Phaius Marshalli*, the peculiar reddish *Anguloa Ruckeri sanguinea*, and the strange green-flowered *Cynoches chlorochilon* are flowering, the latter being a very remarkable Orchid, with a long slender curved column similar to some others in the "Swan Neck" genus. *Maxillaria grandiflora*, with wax-like flowers, the sepals and petals white, the lip brownish yellow, is notable. *Saccolabium retusum* has some handsome racemes of flowers. The distinct *Cypripedium Druryi* is not seen very often. The flowers are of medium size, of yellowish tint, striped with brown down the centre of each. *Odontoglossums* are numerous. *O. cordatum* and *O. luteo-purpureum* are represented by strong plants of good varieties. The graceful little *O. Ehrenbergi* is also flowering; it is apparently intermediate between *O. Rossi* and *O. cordatum*, with narrow tapering sepals thickly spotted with pale brown on a white ground. The petals are broader, white or very faint blush, with a few spots at the base; the lip is similar, but with an undulated margin and without the spots. The flower-stalks are very slender, and the plant has a pretty appearance.

#### RED SPIDER ON MELONS.

"DISCRETION is the better part of valour," and I would impress this on the minds of those who have not used sulphur for the destruction of red spider. I have found that if the pipes are painted with sulphur when they become warm the fumes, if strong enough to kill the spider, will kill the Melon plants; also if the walls are whitewashed and the sun shines on them the fumes are injurious. I once had to hold up the leaves of some Melon plants whilst the foreman blew sulphur on with the fumigating bellows. The result was a six-light pit of dead plants before forty-eight hours had elapsed.—J. GADD.

#### CHOICE PERENNIALS IN FLOWER.

THE spring and early summer months are decidedly the richest among hardy herbaceous, alpine, and bulbous plants, and in a few remarks respecting them at their season of flower I have placed them collectively under the heading of "Perennials." So great is the variety of flowering perennials which any border 100 yards long may contain, and so many of which are of such great service in a cut state, that it is surprising herbaceous borders are not oftener met with in private gardens. Surely there is sufficient scope for their accommodation, and apart from the intrinsic value of the plants the abundance of flowers which they yield, to say nothing of the attractiveness of such a border at the present time, would well repay any moderate outlay. I do not refer to what too often hear the name of herbaceous borders in many establishments, and which contain a fair complement of plants, giants far better suited for mingling in shrubbery borders, and at the same time make room in the herbaceous border proper for really good and select plants, of which there are abundance, for I have no hesitation in saying that hardy plants were never more popular, nor were they ever grown in greater numbers than now. Another point may also be gained by having a good collection of hardy perennials in all establishments, by a suitable arrangement in the first place, and then in a clear and well defined hand place its full name in front of each. If this were adopted a little more frequently than it is we should see a greater number of the rising generation of young gardeners possessing a knowledge of the plants, who are unfortunately in many cases entirely ignorant in this respect. Still, it is so, and so little really is known of the best of our hardy perennials that many young gardeners and not a few old ones have from tuition been accustomed to regard hardy



plants as something akin to weedy straggling rubbish, and not worth the room they occupy. In my experience this has frequently been the reply when I have been endeavouring to persuade a friend or acquaintance to attempt the culture of a few of these plants; and in the cases where I have succeeded in persuading them, which are not a few, their only regret has been that they were not aware sooner of the really good plants which are so plentiful. I will conclude these preliminaries by remarking that I consider a collection of hardy plants should find a place in all gardening establishments.

Among bulbous plants yet in flower may be mentioned the double Poet's Narciss, *N. poeticus* fl.-pl., in which we have a flower of pearly whiteness with fragrance unsurpassed. There appears difference in form even of these, some strains being as fully double as a Rose to use a common expression, and others only having a double number of petals. Of course everyone will decide in favour of the former who requires a flower of durability. From rather late-planted batches of poeticus quantities of flowers have been taken, and the same remark applies to *N. biflorus*, while *N. schizanthus orientalis* has been past a week or more. This latter is very pleasing in a cut state. It may here be observed that the season of flowering of these and other bulbous plants may be considerably prolonged by successional plantings, which, beyond supplying a more lengthened display, will materially deepen the interest already involved.

Two other charming bulbs just now are to be found in the genus *Allium*, in which *A. triquetrum* and *A. neapolitanum* are represented. The former is a most pleasing species, not quite 1 foot high, but certainly a most desirable and interesting plant. The flowers are arranged in drooping umbels somewhat bell-shaped and pure white, and in the centre of each petal an exceedingly narrow line of light pea green. This combination of colour does not usually meet with many admirers. In the present case, however, it is the exception, for all who behold it speak highly of its ornamental characters. The latter plant also has white flowers, which are very useful for cutting, as is the first named. There is not much in blue flowers just now among bulbous plants. The *Scillas* or *Squills*, both of the nutans and campanulata sections, are passing out of flower. They have, however, been very charming, and for grassy slopes or naturalising they are valuable. In both groups are to be found rose, white, and blue flowers, the latter colour being represented by several shades.

Speaking of blue, our thoughts very naturally turn to the *Gentians*, in which genus this colour predominates, and what more striking when seen *en masse* have we than the intense blue of its flowers, which are always so bright in the morning sun? But how shy this plant is of flowering in certain localities, while in others small tufts may be found almost hidden by its large erect bells of blue. Often have I recommended firm, very firm, planting for this, and, in fact, any of the family with compact tufts of leaves, and I still advocate and practise it. Only this day, June 3rd, have I planted a small patch, and not content by exceptional firm planting in the first place, I took a spade and beat the whole surface hard, plants and all, which, owing to the coriaceous texture of its leaves, do not appear to suffer the slightest injury therefrom. This circumstance, which I have always regarded as a valuable hint towards good culture, dawned upon me some twelve years ago owing to a quantity of it then used as an edging flowering more freely than the clumps in the middle of the bed. The outer ones were nearly always being walked upon, except when in flower, so that the ground became as hard as a well trodden path, and through this hard surface the stoloniferous growths issued abundantly, and it is due to this accidental though valuable lesson that I have purposely trodden many hundreds. I find, however, that it flowers quite well without all this care in some soils, but in clayey and cold soils it is shy, and from my own experience it flowers most freely when situated in light sandy or turfy loam and peaty soils, and especially so if the subsoil be of gravel. The same may be said of the Vernal *Gentian*, a delicious bit of blue, which the artist really delights in reproducing.

The Grape Hyacinths are on the wane now, though they constitute when in flower a most pleasing group of dwarf spring bulbs, which last for weeks in succession; and who, I wonder, would wish his garden to be devoid of that lovely colour to be found in *Omphalodes verna*, a plant which for shade moisture is most delightful? Spreading out into large tufts, or rather broad carpets, and studded with its brilliant blue flowers, few plants are more enchanting than this modest beauty, and few rejoice more in cool and shade than this and the pretty white variety which forms so fitting a companion for it. I have the latter at the present time behind a low brick wall where the sun never reaches it, and nothing could be more perfectly happy than it appears to be, and which its luxuriance fully illustrates.

But yet another bit of blue may be found in that charming little rock shrub, *Lithospermum prostratum*, than which we have few finer plants for adorning our rockeries. It delights in a sunny position and not too much exposed, and where its tiny fibres may go down deeply into good soil. It should be well planted in the first instance, for it is one of those plants which cannot endure being removed, as the twiggy fibres do not hold the soil, hence the danger. The first season or two after planting it should receive attention, or it may become straggling and thin. This is overcome by cutting it back immediately after flowering, when it will form abundant growth from the centre before autumn arrives. These young growths when 2 inches long may be detached with a heel, and if inserted under a handlight or bellglass root freely, such cuttings as these generally making good plants; and seeing we cannot have too much of such a one, its propagation may freely be indulged in, and may be used as an edging with very good effect.

Of plants bright and conspicuous in the flower garden just now we have nothing to compare in any way with *Primula japonica*; its stout bold stems, on which are arranged its whorls of crimson magenta flowers, are simply unique. I need hardly add that a plant so telling individually is a glorious sight when a number is seen together; and even after an acquaintance of some years, an intimate acquaintance too, I have never seen it so near perfection as when viewing it this week, when it attracted attention at a distance of about 80 yards. So rich and so intense were its massive spikes of flowers, towering above abundant and vigorous foliage. This is a glorious plant for the moist bog garden in full sun or a moist border in partial shade, and it may be well to observe that none of the variety known to me appear to approach in intensity of colour that of the original plant. In its genus it is unique, and in the flower garden and herbaceous border at this time it holds a similar position.—J. H. E.

(To be continued.)

#### AMMONIA IN FRUIT AND PLANT HOUSES.

I WAS under the impression that the value of ammonia in the atmosphere of fruit and plant houses was understood by gardeners generally. I know that many of the best fruit-growers practise it with beneficial results. Fresh stable manure, which has been turned a few times so as to dispose of its noxious vapours, is very valuable for surfacing the inside of fruit houses, and if this can be renewed a time or two before the fruit commences ripening it will be all the better. A little guano placed occasionally in the evaporating troughs is very beneficial, but this must be applied with caution or the reverse would be the case. We have placed a large pot filled with cow and horse-droppings and soot in Cucumber and Melon houses. This was stirred up every afternoon when the house was damped down and closed, and beyond question the plants enjoyed it. Some of the finest plants of *Gardenias* I ever saw were grown in a dung-heated pit; the foliage was almost "black with health," and the plants bloomed profusely. Where stove plants are grown the centre of the house is often occupied with a stage of either wood or slate, but I am quite certain a pit which could be filled with prepared stable manure and leaves, leaves alone, or even tan, would be far better for the plants.—A. YOUNG.

I, LIKE "F. H. W." (page 481), felt disappointed that no one supported Mr. Iggulden in his views respecting the value of ammoniacal vapour in vineries. Speaking for myself, I have found most beneficial effects from the use of it, as I believe it is a great check to red spider. When I have been able to get liquid manure from the drainings of cow sheds or stables I have used it without stint both in vineries, Peach houses, and more especially for Cucumbers and Melons, of course being careful in using it when the foliage is very tender or the Grapes in bloom. I once was inclined to think that it was the cause of some Grapes rusting when used liberally when they were in bloom, and thus was cautious ever after. When natural liquid manure is not obtainable I sprinkle a handful of guano on the floors after they are damped down, the fumes at times causing a person entering the houses immediately after to sneeze; but this soon goes off, and by leaving a little ventilation all night the houses are as sweet as can be desired in the morning. Time will not allow me to say more on the subject, but I must say Mr. Iggulden has hit the right nail on the head for success in Grape-growing by his advocacy of ammonia in vineries.—J. GADD.

#### LIVERPOOL—VISITORS' GUIDE.

(Continued from page 482.)

FROM the nursery last mentioned directions should be obtained for the residence of E. Harvey, Esq., Riversdale Road, Aigburth. I think Otterspool the best station for this establishment. Mr. Lindsay would be able to give the necessary instructions, or visitors would obtain them from the nursery named. The garden is famous for alpine and herbaceous plants, and also for a large and varied collection of Orchids, Mr. Harvey being remarkably fond of both classes of plants. The gardener is Mr. Bostock. In a large measure Mr. Harvey's energy and perseverance have assisted in gaining support for the coming Royal Horticultural Society's Show at Liverpool.

I may here state what I have omitted to say while at Wyncote and Calderstone. From this point about twenty minutes' walk will reach Cleverley, Allerton, the residence of T. S. Timmis, Esq. (gardener, Mr. B. Cromwell). The glass there is comparatively new, and comprises a number of plant and fruit houses all leading from a long corridor. This arrangement is, perhaps without exception, the most compact and convenient within a considerable distance of the city. Mr. Cromwell being a good gardener, will be certain to have something good on view by the date of the Show, the houses only just being furnished at the time of my last visit. The arrangement of the houses alone is well worth a special journey from Liverpool to see.

About twenty minutes' or a half an hour's walk from there is Allerton Priory, the home of J. G. Morris, Esq. (gardener, Mr. W. Tugwood). There is a large extent of glass in these gardens, both for the accommodation of plants and fruit. Mr. Tugwood has been a successful exhibitor at the Liverpool shows for some years. Close by are Allerton Towers, the seat of Sir T. Earle, Bart. (gardener, Mr. J. Storey). The principal feature is the Peach range. Directions for reaching these should be obtained from Mr. Cromwell.



We start from Garston again, on the Cheshire line. The journey should be broken at Hunt's Cross, the next station, for the purpose of inspecting the gardens at Woolton Wood, where Halbrook Gaskell, Esq., grows his famous collection of Orchids, which is the largest private collection in this neighbourhood. The gardens are twenty minutes' walk from the station, and in addition to Orchids there are to be seen collections of Ferns, a pretty fernery, alpine and herbaceous plants. Only a few minutes' walk from the front entrance to Woolton Wood is Camp Hill, the home and gardens of F. H. Gossage, Esq. (gardener, Mr. J. Jellico). This is certainly worth seeing, for Mr. Jellico does things wonderfully well, and has been one of the successful competitors at Liverpool for some years. Leaving here Gateacre station should be steered for, which is twenty minutes' walk from Woolton. The line taken is straight through the village and on until Gateacre Brow is reached, which is the first road on the right, and leads to the station. Upon entering the Brow the residence of Sir A. B. Walker, Bart., is on the left-hand side, but to enter this place it is necessary to pass the entrance to the Brow a few hundred yards, the house and gardens being then on the right. Mr. Glover is the gardener, and will be known to many from his position for a time as Secretary of the Liverpool Horticultural Association.

From Gateacre the train should be taken for West Derby, which is

twenty minutes' walk from the village. No one will be disappointed by paying a visit to this fine place, for it will be found perfectly clean. It is one of the most extensive gardening establishments, and perhaps the best kept garden in Lancashire; it, however, is decidedly the best in the neighbourhood of Liverpool. Mr. B. Barham has charge of Croxteth gardens.

Knowsley Hall must not be omitted, for it is the most extensive garden about Liverpool. It is four miles from West Derby, and when at the Earl of Sefton's, if permission can be gained to pass through the Park, Knowsley will be reached in half an hour's brisk walk. It can, however, be reached by the London and North-Western railway from Edge Hill or Lime Street station to Huyton station, from which it is two and half miles. This is rather a long walk, but the acres of *Rhododendron ponticum* growing naturally on the moss, when all are in bloom, form a beautiful sight, and one that is not quickly forgotten. Gardeners must visit Knowsley, for they will be well repaid for the walk necessary to reach this gigantic gardening establishment. When at Knowsley ask Mr. Harrison to direct you to Mr. Whittaker's Cucumber-growing establishment; it is not far away on the Knowsley estate. In this establishment Cucumbers are grown without ventilation, and tons are cut weekly.

One more trip for a change will be detailed, and then I close this

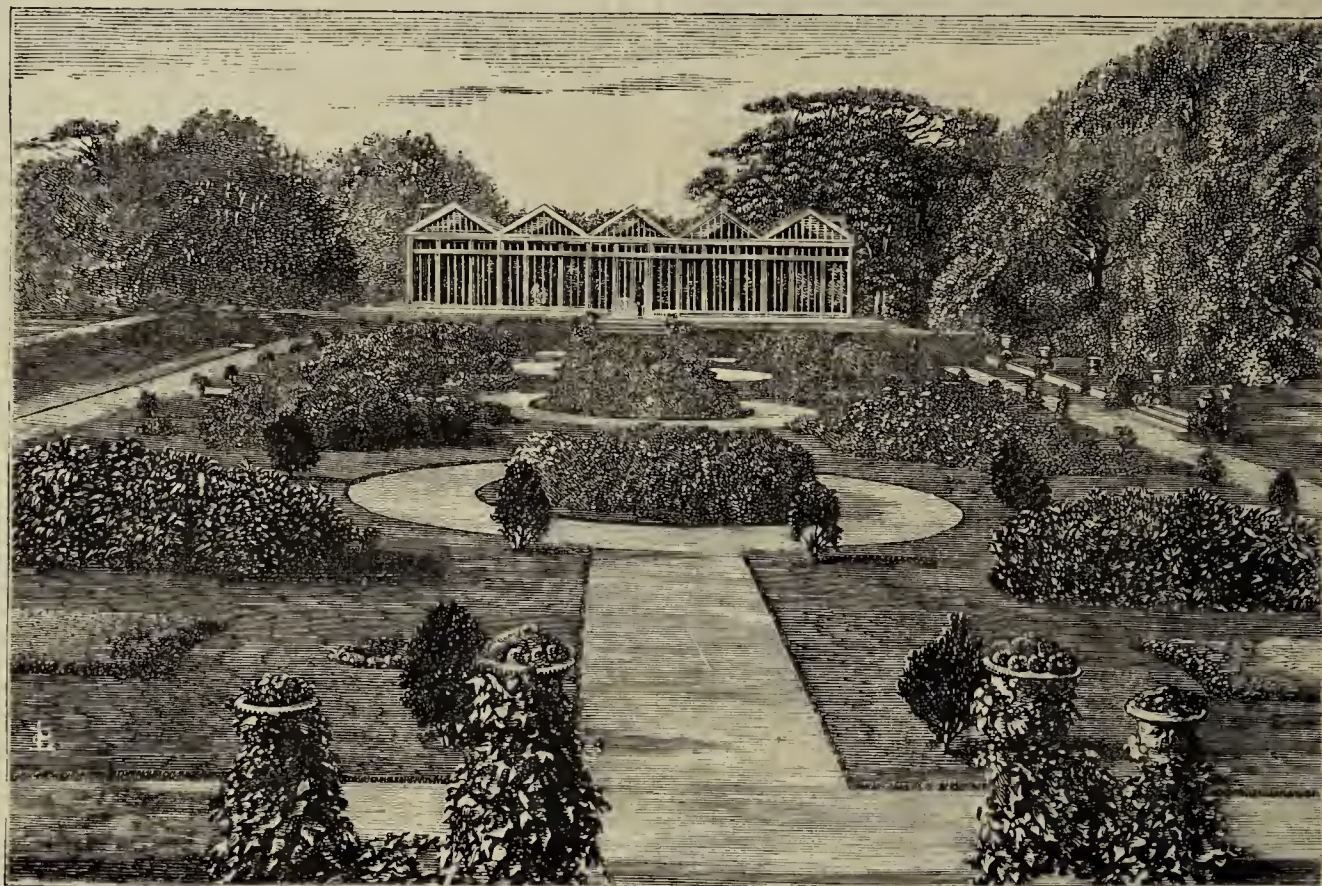


Fig. 93.—NORRIS GREEN.

the third one after leaving. It may not be convenient to venture on to West Derby if the day has been fairly spent in visiting the places referred to. This, however, is a matter for each individual to decide for himself. West Derby can be reached by trams from town for 4d., which pass Lime Street station every quarter of an hour. Visitors often make a mistake with these trams, because there are others with West Derby Road upon them, but these are of no service for the traveller to West Derby. The trams are green, and have the name on the front as well as the back. The Green Lane tram will do very well, it passes the same place, and by it passengers should pay to Tue-Brook Railway bridge, and then follow the same 'bus a few hundred yards—namely to Green Lane Corner, where it turns from the main road and passes along another to the right. Wait at this corner for the West Derby tram, and ride until it stops in the centre of the village. West Derby can also be reached by train from the Central, fare 5d., third class, although this line goes on through Garston, many of the trains reach West Derby in a little more than half an hour. When the tram is left in the village of West Derby ask for Norris Green (fig. 93), the drive gate being in a straight line for the village, and only five minutes walk from it. Everybody can tell the stranger the way to Norris Green, the name of which, as well as that of the gardener, Mr. W. Bardney, is well known to the readers of this Journal.

From the village of West Derby will be seen the lordly entrance to Croxteth Hall, the seat of the Earl of Sefton (fig. 94). The gardens are

"Gardener's Guide" for Liverpool. From Lime Street, or from Birkenhead, the station close to where the tram starts for the Park, Chester may be reached; from the former the fare is 1s. 9d., and from the latter 1s. 5d. The two largest provincial nurseries in this part of the country are side by side in the vicinity of the old city of Chester. The Newton Nurseries (Messrs. James Dickson & Sons) are ten minutes' walk from the station, and the Upton Nurseries, those of Messrs. F. and A. Dickson & Sons, twenty minutes. A 'bus runs to the latter from Eastgate Street. These Nurseries are well worth visiting when in the neighbourhood of Liverpool. While at Chester, Eaton Hall, the residence of the Duke of Westminster, should be visited. This is four miles away, but a 'bus leaves the tram offices close to the station for Eaton Hall daily, starting at 2 P.M. and returns at 5 P.M., return fare 1s. 6d. Steamers also leave the river every half hour, return fare on these 1s. What can I say for Eaton Hall gardens? They are a treat in store for those who have not seen them, and if Liverpool is visited set one day apart for Chester to see the nurseries and one of the finest gardening establishments in the north of England.

In conclusion, I advise all gardeners, when they arrive in Liverpool, to buy Benson's Liverpool Penny Railway Guide, which gives all the local trains, steamers, 'buses, and trams, their starting points and destination, as well as the exact time between each 'bus or tram. Bring also the *Journal of Horticulture* in your pocket, or that portion of it that



contains these notes, and then each will possess two reliable guides.—A CITY MAN.

P.S.—The station given from the Central for Sefton Park at page 482 last week should be St. Michael's and not Mersey Road as stated. St. Michael's is the next station to Otterspool, and should be substituted in the next paragraph for Mersey Road.—A. C. M.

### VIOLETS IN FRAMES.

THERE is no certainty of gathering blooms in autumn, winter, and spring without employing means that protect them from cold and wet, whilst admitting the full influence of light and air. Considering that half the year the plants require full exposure for the growth made and perfected outdoors, the situation should be open. Shelter is essential. A hedge of Privet, Holly, and Yew, about 4 feet high all round, will break the force of wind from whatever quarter; but a clear space must be kept between the hedge and the beds equal in width to the height of the former, as hedges shade even on the sun side, and the Violet plants should be outside the shadow caused by the hedge. Walls are the worst shelter conceivable for Violets, as they stop, not sift air, as hedges do. The site

admixture of the ingredients, and be careful to choose dry weather for the operation. Turfy loam cannot always be bad, so that material at command must be utilised. The natural soil being light loam take four parts, add a part pulverised clay, chalk broken small a part, old cowdung a part, and incorporate thoroughly, adding a bushel of soot, and a similar quantity of wood ashes to every thirty of the compost, thoroughly mixing. Heavy soil in four parts should have one part added of lime rubble or burnt clay, a part horse manure or leaf soil, and half a part charred refuse. If deficient of grit, add half a part road scrapings. A bushel of soot may be added to every thirty of the compost. Soils that are of medium texture will only need an addition of a fifth part of thoroughly decayed farmyard manure and some old lime rubble. To all, an addition of half-inch bones may be made, one part to thirty of the compost.

*Forming the Beds.*—Secure the drainage with a thin layer of sods, grass side downwards, and sprinkle with crushed bones or calcined oyster shells, then introduce the compost. It should be put in evenly, and pressed down firmly, but it must be in such a condition as not to clog or adhere to the boots. The soil should be slightly raised in the centre, but not much, and need not be more than 9 inches deep.

*Preparing the Plants.*—Success depends on the length of season the



Fig. 94.—CROXTETH.

should be high and dry. Plants grown on high ground are hardier, the growths more thoroughly solidified than those produced in low sites, where damp gathers soonest and remains longest. If not drained naturally it must be so artificially, so that water cannot lodge within 3 feet of the surface. Drainage insures the free percolation of water through the soil; rain enters it freely, sucking in air and life, adds 2° or 3° to the warmth of the soil, and aids in the preparation of food in an acceptable form for absorption by the roots and concomitant assimilation by the plants.

*Arranging the Beds.*—The ground should be disposed in beds with alleys or pathways between. The ends of the beds are best east and west if they are to be covered with lean-to or three-quarter span frames; and the ends of the beds should be north and south if span-roofed frames are employed. The width of the beds must accord with that of the frames, and the alleys ought not to be less than 3 feet, and need not exceed 4 feet 6 inches in width, even for the widest frames. The first named is suitable for beds of 4 feet wide, and the latter for those of 6 feet in width. If the beds are to be permanent, which is strongly advised, it is a capital plan to form the sides of brickwork, and 6 feet in width from outside to outside of the brickwork, so as to be covered with frames of that width. Where the ground is wet and low raise the beds four courses of bricks above the surrounding ground level.

*Compost.*—Turf yellow loam five parts, the top 3 inches being taken off with its turf in autumn and stacked grass side downwards, will be in good condition by spring; thoroughly decayed manure one part, and old mortar rubbish, removing all pieces of wood, and breaking small so as to pass a sieve with 1-inch mesh. Chop the turf up moderately small, and incorporate the whole together, then add a bushel of soot to every thirty of the compost, and turn over a couple of times so as to insure the thorough

plants have to make a full and free development of the crowns from which the blooms are produced. Unless these are formed in the previous summer blooms will be sought in vain, for, however good the treatment after, they, having no huds, are barren. To wait until May for suckers or runners is too late to get strong plants for flowering in autumn and through the winter. The proper way is to take up old stock that is past flowering and in good health, as sturdy stock only afford vigorous offshoots, and part the plants, singling out and saving all the finest side shoots whether of sucker or runner kind, which, although having no roots at the time, soon make some if pricked out in pans or boxes and stood where they get a gentle moist heat. As soon as this is effected they must have air to prevent weakness and drawing. This is readily accorded in a cold frame, but it must be protected from frost in cold weather, and the atmosphere kept so as to accord with the weather. The suckers or runners may be placed in frames when detached in light soil with a third of leaf soil intermixed as close as they can be put in without crowding, where they can be kept close for a time, shaded from bright sun, and sprinkled or syringed to maintain the leaves in a fresh condition. They should have air freely when root-d, and be gradually hardened until they are fit to plant in the prepared beds. The early part of March is a proper time to put in the suckers or runners, and by the close of April or early in May they will be fit to put out in the beds. When the stock is short suckers or runners may be taken in December and January without lifting the plants, taking them off those in frames and inserting round the sides of pots; root them in gentle moist heat, and afterwards transfer to cooler quarters. Ordinarily a sufficient number of well-rooted suckers can be had from plants that have been covered with frames. Properly hardened off, these are eligible for planting as they will have acquired a tendency to



make and complete an early growth and flower at an earlier season by previous treatment.

Plant in rows 18 inches apart for the strong-growing kinds, and 15 inches asunder in the rows; medium growers 15 inches asunder, and 12 inches apart in the rows; small growers 12 inches apart one way, and 9 inches the other. In prepared beds the plants need not be put on ridges; but the crown should be kept well up to allow for mulching, occupying a kind of knoll. To set plants on the flat and afterwards mulch, so as to bury the crown, is only courting disaster in destroyed centres and multiplicity of side growths and suckers. Firm the soil well about the plants and water at once. The time to plant is from the middle of April to the middle of May, according to the season, but it is better to be a little too late than too early. The chief thing, however, is to have sturdy, well rooted, and hardy plants. Shade for a few days if the weather be sunny until established.

**Summer Treatment.**—Water in dry weather once a week thoroughly, and syringe each evening in hot weather. Mulch with thoroughly decayed manure or leaf soil, and repeat as it becomes reduced. Keep free of weeds and runners, and feed with liquid manure from May.

**Season of Bloom.**—Towards the close of August flowers will appear, and by the middle of September they will be plentiful. From this they will flower right away into spring, or until all the buds in embryo have developed into flowers. Our climate, however, is so variable that a continuous supply cannot be depended on unless steps are taken to exclude frost, excessive moisture, and promote a genial atmosphere. This is effected by lifting the plants and transferring them to frames or pits, or by covering the plants with frames where grown. The latter is much the better, though the other is more general through being more in accordance with our view of the uses to which the frames can be put when not occupied with Violets. It is, indeed, a practice that is convenient, but is bad, as it is performed when the plants have commenced to develop their flowers; and however carefully the lifting is performed there is a great loss of active feeders, and some time must elapse before they are again present in such force as to meet the requirements of the developing blooms. They receive a check, and the rooting powers have not recuperated soon enough to maintain a succession of blooms through the autumn and winter, though it may do so early enough to insure a capital supply of flowers in favourable weather soon after the turn of the days, or in February onward. In that respect lifting has its advantages, albeit the flowers are never so fine as when the plants are allowed to flower with their unimpaired root-action where grown.

**Period of Covering with Frames.**—This must be determined by the weather, but they should be in position by the end of September, so that the lights can be used upon the first setting-in of frost and continued cold and wet weather, as to have bloom in autumn and winter the plants must be kept in steady progressive growth, and this can only be effected by frames that admit of a free circulation of air, full exposure by ready removal of the lights, and means of heating so as to secure in the severest weather a temperature of 45° to 50° by day and to exclude frost at night. The frames will be needed in ordinary seasons from the end of September until the flowering is over in spring.

**Ventilating and Heating.**—Whenever the temperature outside is over 35° air should be admitted. When the outside temperature is 50° the lights should be raised to their fullest extent or removed; but if rain prevail the lights should only be raised so as to admit of a free circulation of air. Heat should be afforded so as to maintain a temperature of 50° by day in mild weather, and 45° in dull and cold weather; at night the temperature may fall to 40° in cold weather. A little warmth in the pipes is of great benefit, even in dull wet weather, in inducing a circulation of air. In very severe weather merely employ fire heat to exclude frost at night, and maintain 40° to 45° in the daytime.

**Winter Treatment.**—In addition to ventilating it will be necessary to look over the plants occasionally for decayed foliage, every particle of which must be removed so soon as it appears, and every defective and small flower, as well as spent ones, should be carefully removed. The mulching should be renewed in autumn, putting on some sweet thoroughly decayed manure or leaf soil after a thorough cleansing of the plant prior to putting on the frames, and if the ground be dry a thorough soaking of water should be given through the mulching, employing a rose watering pot. Whenever the plants become in the least dry a good watering should be given over the foliage, but liquid manure should be poured between the rows, and kept clear of the foliage and flowers.

**Duration of the Plants.**—After flowering the plants should be destroyed and fresh plantations made annually, it being advisable to give a change of soil each year, and occasionally a change of plants will be found beneficial, the changes being best when made from heavy soil to light, and *vice versa*.

#### SELECTION OF VIOLETS FOR FLOWERING IN AUTUMN, WINTER, AND EARLY SPRING.

##### I. Strong growers.

*Victoria Regina*.—Purple, single; the best autumn and winter bloomer.

*White Czar*.—White, single; best white autumn and winter bloomer.

*Odoratissima*.—Bluish violet, single; very fine in early spring.

##### II. Medium growers.

*Neapolitan*.—Double; lavender, white eye; best in spring.

*White Neapolitan*.—Swanley White, Count Brazzi's, &c., double, or semi-double, white; best in early spring.

*New York*.—Double, deep mauve streaked red, with white eye; best autumn and winter bloomer.

*De Parme*.—Double, deep lavender, white eye; best in early spring.

*Marie Louise*.—Double, lavender blue, white eye; best in autumn and winter. This kind is very liable to develop under cultivation into New York—i.e., become deeper coloured, and have red streaks. It is much conformed with that variety.

##### III. Small growers.

*Patrie*.—Double, purple-violet, streaked red; best dark double Violet in cultivation. Very old and very good, blooming from September to April. It is the colour for the "Dark Blues."

*Double Pink*.—Very fine, best in spring; somewhat stronger growing than *Patrie*.

All have long flower stems, large flowers, and great fragrance.—VIOLETA.

#### CHERTSEY AND DISTRICT HORTICULTURAL SOCIETY.

JUNE 17TH.

THIS being a "district" Society, the shows are moveable, being held first in one then in another of the chief centres of population in the locality. This population is not only considerable, but consists of many wealthy families, London merchants and others, who have excellent gardens managed by excellent men. The Exhibition was held this year in Woburn Park, Addlestone, an admirable site kindly placed at the disposal of the Committee by the President of the St. George's College. It was the twenty-first annual Show, and to cite from the "report," "During the twenty-one years of the Society's existence the Committee are encouraged to believe it has done good service for the advancement of floriculture and horticulture in the neighbourhood." There cannot be a doubt that it has done great good, and a very commendable spirit of emulation exists amongst the gardeners of the district, who prove their ability by their work. The Exhibition, to be briefly noticed, was not the largest that has been held, but ranks among the best, not a few of the products being of a superior character. Among the successful competitors were Mr. J. Reeves, gardener to W. Hewett, Esq., Templemere, Oatlands Park; Mr. J. Reed, gardener to E. Petit, Esq., Broadwater; Mr. J. Child, gardener to Mrs. Slade, Claygate, Esher; Mr. J. Plowman, gardener to C. G. Lavers Smith, Esq., Oakfield, Walton; Mr. W. Sutton, gardener to J. S. Sassoon, Esq., Ashley Park, Walton; Mr. Millican, gardener to H. Corbett, Esq., Walton; Mr. Waite, gardener to Col. W. P. Talbot, Glenhurst, Esher; Mr. Sparrow, gardener to Rev. A. Bramwell, Barrow Hills, Chertsey; Mr. Carpenter, gardener to C. J. Abbot, Esq., Rydens, Walton; Mr. Harvey, gardener to Capt. C. F. Terry, Hershaw; and Mr. J. Thorne, gardener to A. E. Flood, Esq., Walton.

In the class for six flowering plants Mr. J. Reeves secured the first position with fresh and bright examples of *Clerodendron Balfourianum*, a *Kalosanthes*, *Tabernaemontana*, *Statice*, *Anthurium Schertzerianum*, and a *Rhynchospermum*; Mr. Reed following. Mr. Child was first in the class for four plants with well grown neat specimens—two varieties of *Allamanda*, an *Anthurium* and *Statice*. Mr. Plowman securing second honours. Mr. Child staged by far the best miscellaneous collection of stove and greenhouse plants, including a separate variety of *Cattleya Mossiae*. Mr. Sutton was also awarded a first prize in this class. The prizewinners for fine-foliaged plants, which were very good, were Messrs. Reeves, Sutton, and Reed, the former staging *Phoenix reclinata*, *Caladium Prince Albert* Edward, very fine; *Croton majesticus*, *Cycas revoluta*, a *Cocos* and a *Cyathea*. Ferns were admirably represented, the prizes for six plants going to Messrs. Reed and Reeves; for four to Messrs. Millican and Sparrow. Mr. Millican was first with hardy Ferns, and well won Mr. Rooke's special prize for British species.

Fuchsias were excellently represented, Mr. Reeves being first with six plants, splendidly grown specimens 6 to 8 feet high, the flowering sprays almost hiding the pots. Messrs. Reeves, Plowman, Child, and Reed also showing most creditably. It was pleasing to observe the absence of close lacing in the preparation of these elegant plants, which not unfrequently amounts to distortion. *Caladiums* were wonderfully well grown and very handsome, finer plants being seldom seen than those staged by Mr. Reeves, *bicolor splendens*, *Houletti*, *Meyerbeer* and *Alfred Bleu* being 4 to 5 feet high and the same in diameter. Mr. Child was worthily awarded the chief prize for beautiful fresh pans of *Achimenes*, and Mr. Waite for admirably grown *Gloxinias*, 18 inches in diameter, each with two dozen very large flowers. Messrs. Sparrow, Stedman, and Carpenter also competing well and successfully.

Tuberous *Begonias* were of great excellence, not large but wonderfully vigorous and well flowered. Mr. Child's first-prize plants were from 18 inches to 2 feet in diameter and densely laden with brilliant blooms. Messrs. Thorne, Reeves, and Carpenter had smaller well grown plants in superior varieties. Messrs. Child, Reeves, and Millican were the prize-takers in the *Pelargonium* classes with fresh medium-sized specimens; and Mr. Clay, Kingston-on-Thames, staged a number of seedlings of show varieties which were highly commended. Table plants were staged in large numbers, Messrs. Reeves, Waite, and Reed being the successful exhibitors, and *Jacaranda mimosæfolia*, perhaps the most elegant plant in the collections.

Groups of plants arranged for effect invariably constitute a prominent feature at the Society's shows. G. F. Wilson, Esq., F.R.H.S., gave the first and second prizes for arrangements in a space of 10 by 5 feet. Mr. Reeves was the premier exhibitor with one of the lightest and most tasteful groups we have seen, consisting of *Humeas*, Canadian and Japanese Lilies, *Casuarinas*, *Cocoses*, brightened with Tuberous *Begonia*, a telling *Amaryllis*, and *Campanulas*, relieved with several plants of *Saxifraga pyramidalis*, and edged with golden *Selaginellas* and *Panicum*. Mr. Plowman was placed second with plants of good quality but not devoid of "packing." Mr. Millican closely following with a cheerful arrangement, but the front too close and smooth. This group was remarkable as containing *Chrysanthemums* as fresh in foliage and flowers as in November; indeed, better blooms of Golden Middle Marthe have perhaps never been seen than on a plant in this creditable collection. Mr. Sutton was distinctly first in the "large group" class (14 by 7 feet) with a beautiful arrangement, the back



consisting of healthy Palms interspersed with Canterbury Bells, a central mass of Petunias, and a margin of dwarf Ferns, Caladium argyrites, and fine Gloxinias, relieved with Liliums and pyramidal Saxifragas. Mr. Harvey was the remaining competitor, and was properly adjudged the second prize.

The display of fruit was limited, and it must suffice to say that Mr. Sparrow was placed first with both black and white Grapes—Foster's Seedling and Black Hamburg; Messrs. Waite and Sutton following. The best Melon in the Show was Hero of Lockinge, exhibited by Mr. Child; the best scarlet flesh being Benham Beauty, staged by Mr. Sparrow. Marguerite was the finest Strawberry, and well won the first prize for Mr. Sharpe of the Royal Strawberry Gardens, near Virginia Water, where all visitors gather and eat what they like for 9d. Mr. Harvey was second with La Grosse Sucre large and highly coloured, and Mr. Child third with James Veitch.

Several stands of Roses were staged in competition for the prizes, the blooms being small but fresh, Messrs. Sparrow, Carpenter, and Waite being the prizewinners; and the same exhibitors, with Messrs. Reeves, Reed, Harvey, Thorne, and Waite, were successful in other classes for cut flowers.

In one of the Pelargonium classes an exhibitor appeared to have forgotten the conditions of "three trusses to form a bunch," for the Judges found nine trusses of one variety neatly tied up, and spread them on the board. This unfortunate accident lost the grower a prize. In the class for drawing-room epergnes Messrs. Millican and Plowman were the successful exhibitors; and in the ladies' class Miss Castle had a charming study in yellow—a basket of Corn Marigolds, Pansies, Roses, Welsh Poppies, and Ferns; it was most deservedly awarded the first prize in its class.

Vegetables were staged in first-rate condition by Mr. Waite, his collection of eight dishes being of the very best quality. Telephone Peas were of surprising excellence so early in the season; Waite's Seedling Tomato, of the Stamfordian type, splendid; and Cauliflowers, Beans, Carrots, Turnips, Potatoes, and Asparaguses of marked excellence. The Show was admirably managed by Mr. T. Rawlings, the experienced and courteous Secretary.

### THE DELL, EGHAM.

IT is a pleasant run of just under an hour from Waterloo to the quiet and unpretentious little town of Egham, which is similar to many that may be found in the rural districts of Surrey, and a still more agreeable journey by road for a distance of about two miles conveys the visitor to Baron Schröder's celebrated garden, The Dell. From Egham there is a steep ascent nearly the whole of the way until Englefield Green is reached; and some charming cottage gardens are passed, embowered in Roses, Honeysuckles, and Fuchsias, everything possessing that fresh bright appearance so characteristic of gardens and vegetation in South Hants or in the neighbourhood of Ventnor in the "garden of England." Partly hidden by trees a glimpse is obtained of the magnificent pile of buildings, the Royal Holloway College, that has been erected at the cost of £300,000, and which, it is said, Her Majesty will shortly open in person as her first public act in her jubilee year. Extensive views of a very pretty landscape can be obtained from here, and on a bright June day of the typical poetical kind we might be disposed to pause a little; but with dark and threatening clouds overhead, and a keen cold wind unpleasantly suggestive of March, we hasten to complete our journey, and soon come in view of the neatly kept symmetrical Holly hedges which form the boundary of The Dell gardens.

This estate, which comprises about 150 acres, is situated on the confines of Windsor Forest, commanding some delightful views in the direction of Windsor Castle. There are really two gardens, one attached to the house having sufficed the original owners; but when Baron Schröder took possession some twenty-two years since it was found to be too limited in its area, and the proximity of the glass houses to the residence was also objectionable. In consequence, a considerable extent of land was procured immediately opposite, but inconveniently separated by a public road. There a new garden was formed; the houses were removed from the old garden, new ranges were erected, an elegant cottage for the gardener, bothies, potting sheds, &c. A kitchen garden was also formed, and the old garden was devoted to choice Conifers, a magnificent collection of Rhododendrons, flower beds, and lawns. An admirably constructed commodious tunnel of white glazed bricks now passes beneath the road from one garden to the other, and with dense Holly hedges on the roadside a visitor would not suppose that he was so near a public thoroughfare. Leading to the house from the road is a curving carriage way, having on each side numbers of Golden Yews, Retinosporas, Biotas, and variegated Hollies in the foreground, with tall Conifers, especially some fine Douglas Firs, behind. A spacious lawn extends in front of the house, near the centre being a grand old Cedar of Lebanon covering a great extent of lawn with its widely spreading branches, and having quite a forest of huge stems like other large old specimens of this stately Conifer. The more slender Cedrus atlantica is represented by several specimens of good size, one being notable for the strongly marked glaucous tint. Then there are scattered specimens of the choicest Retinosporas, which appear in excellent health, the very bright green Cupressus erecta viridis, some luxuriant graceful Deodars, with several Abies, A. Hookeri being especially handsome, Cryptomerias, Golden Yews worked as standards on the green Irish Yews, and numberless others are beautiful examples of well-grown plants.

### RHODODENDRONS.

The great feature of this garden is, however, the Rhododendrons, which are special favourites with Baron Schröder, and after several years' careful selection a collection has been formed that in number of distinct handsome varieties is equalled in few if any private gardens. The beds

are of great size, and so vigorously do the plants grow that they need an occasional thinning on a somewhat liberal scale. They flower most profusely, and though considerably past their best at the time of our visit, some idea could be formed of the brilliant floral display they provided a week or two earlier. The effect is much improved by the care exercised in the arrangement of the plants of particular varieties, so that one colour does not "kill" another, but rather heighten its beauty by suitable contrast. This is an important matter, and it does not always receive the attention it deserves, the principal object being apparently to arrange the plants according to their respective habits. Where Rhododendrons succeed they are invaluable garden shrubs, and one advantage of planting a number of evergreens of this kind is that the garden never has such a dreary appearance in winter as if deciduous shrubs or trees predominate. The soil had to be specially prepared for the Rhododendrons before they were planted, large quantities of good loam and peat being obtained for the purpose; indeed, a large portion of the garden has been renewed or improved by the introduction of fresh soil at considerable expense and labour. The deciduous hardy Azaleas, that constitute an important portion of "American gardens," are also well represented, their bright yellow, orange, red, and variously tinted flowers filling the air with fragrance. Beds of Kalmia latifolia similarly attract attention, and very seldom is this lovely shrub seen in such luxuriance as at The Dell, producing its large clusters of pale pink wax-like flowers by hundreds, which are admirably adapted for cutting and last well in water. There are also beds of hardy Heaths, and other plants of a similar character, together with beds cut in the lawn for flowering plants of the Pelargonium type. Near where the glass houses formerly stood is a remarkable plant of the old double white Camellia japonica, which is the largest we have seen out of doors. It is planted against a wall, but receives no further protection except in the winter, when it is covered by a glass roof. It is about 15 feet high and 30 feet in diameter, the stem being of immense size. The plant is in excellent health and produces its flowers abundantly every season. Attached to the house is a fernery, tastefully planted in the "natural" style, huge pieces of stone and rock being irregularly disposed to form recesses and pockets, in which the Ferns are planted and their fronds droop over gracefully, clothing the house in a refreshing greenery. Within a few yards from this house the garden abuts on Windsor Forest, and from a kind of terrace walk overlooking the "ferny glades" some delightful views are obtained, especially from the dining-room window, which commands a vista three miles in length, bounded on each side by stately Beeches and other trees, and terminated in the distance by the castle towers.

### THE ORCHIDS.

Quitting this garden, we have yet much to see, for the marvellous collection of Orchids has rendered Baron Schröder's name familiar wherever these plants are prized, and under the care of the genial gardener, Mr. Ballantine, The Dell Orchids have taken a prominent place amongst the best-grown specimens in this country. There is a very general impression that in gardens noted for specialties it must be expected that some other departments are proportionately neglected, but one of the best examples to the contrary is afforded in the garden under notice, for it there seems as if a specialty is made of everything taken in hand. It is true that the skill of the gardener is substantially supported by the employer's liberality and encouraged by his enthusiastic interest, and in these facts we find the secret of the success, a combination that ought to prevail more generally. In forming collections of Orchids the object is usually to procure as large a number of species and varieties as possible, or to obtain extensive stocks of the most ornamental and handsome forms, but The Dell collection has not been formed exactly upon either of these plans. Of many cultivated Orchids the varieties are now very numerous, and amongst these some are imported at times greatly superior to the ordinary forms or the typical species; these invariably realise high prices, and their value is not so liable to fluctuate as that of species which may be scarce one week and the sale-rooms be filled with imported plants the next. When an extra fine variety of any kind is found it is rare that more than one plant is obtained, and as the increase by division is a slow one, it must always remain scarce. Similar remarks apply to most of the hybrids raised in this country, and it is to these and the choicest introduced varieties obtainable that Baron Schröder has given his special attention, with the result that his collection is richer in such varieties than any other amateur's. Next, the object has been to grow all the plants in the best possible manner, and how well this has been accomplished all who have visited The Dell will readily admit. The houses are well constructed, spacious, light, with ample means of ventilation, shading, &c., and filled with every convenience to assist the cultivator, but beyond this the plants need the careful attendance of experienced hands, and in this work Mr. Ballantine receives the aid of a willing staff of assistants. To all, the condition of the plants throughout is most creditable; an unhealthy specimen is not tolerated, and insects are as scarce as anyone could wish them to be.

To refer to the Orchids in detail would occupy more space than can be spared, and we must confine our attention to the principal of those in flower. First, of the Cattleyas there is a fine display, the magnificent C. gigas and C. Sanderiana being wonderfully fine; one of the former from Mr. Day's collection, and one of the latter with lips 3 inches in diameter, are grandly coloured varieties with numerous large flowers. Of the lovely C. Wagneri, a plant in a basket has eight fine flowers, the white sepals and petals contrasting well with the rich orange lip. Cattleya Mendeli is represented by some choice varieties, one having a very rich crimson lip beautifully fringed, and another named superbum being remarkable for its handsome form. The useful C. Warneri, C. Mossii,



and fragrant golden *C. citrina* are flowering well; vigorous specimens of *C. Gaskelliana*, *C. Percivaliana*, *C. Calummata*, and the recently certificated *C. Reineckiana* with broad white petals and petals and a gold and purple-fringed lip also add to the attractions of the house. An exceedingly beautiful specimen of *C. Skinneri alba* is grown in this house and has seventeen racemes of about six flowers each, but it is now past its best and the flowers have been removed, for one point strictly observed is never to allow the plants to weaken themselves by bearing flowers too long, and plants of very choice varieties that are not very strong are not permitted to flower for a season or two. *Lælia purpurata*, and especially that grand variety *Williamsi*, is in superb condition, plants bearing four or more racemes and four to six flowers each, most richly coloured. The rare and valuable *Lælia Canhamiana*, a hybrid between the popular *Lælia purpurata* and *Cattleya Mossiæ*, has two fine racemes of three flowers each. The superb varieties of *Lælia anceps*, of which flowers were shown some time ago at South Kensington, are growing in this house, but, of course, not flowering now. Some healthy *Pleiones* are suspended from the roof, and of other plants the choice *Lælia bella* and *Sobraia xantholeuca* are particularly remarkable.

The Bladderworts, *Utricularia montana* and *U. Endresi*, the former with white flowers blotched with yellow in the centre, the others pale lilac or mauve, are grown in the *Cattleya* house, and thrive extremely well, plants in baskets 6 inches square having twenty to thirty spikes each, their principal requirement being an abundant supply of water. Passing these, several *Vandas*, including *V. teres Andersoni*, a large-flowered variety, *V. Marriottiana*, and *V. Sanderiana*, a grand variety, with a raceme of eight large flowers, the plant having five leads, we come to several *Dendrobiums*, the white *D. Deari* flowering very freely, in some cases with as many as eleven flowers in a raceme. This will be a useful *Dendrobe*, as the flowers last well both on the plant and when cut and placed in water. A dark-coloured *D. Bensoniæ*, and the large *D. Falconeri giganteum*, both fine varieties, together with the seldom seen *D. MacCarthiae*, a lovely species with drooping flowers, with long pale purple sepals, petals, and lip. A huge *Anthurium Andreanum* stands at the end of the central bed in this house reaching to the roof, and bearing twenty-six bright scarlet spathes, some 8 inches long and 6½ inches broad; it is the finest plant and variety we have seen. Near to this is a bank of *Cypripediums*, which include some valuable varieties and hybrids. One of the first noticed was the Garbrand Hall specimen of *C. Stonei*, which Mr. Child has so frequently shown at the leading exhibitions; then the choice variety of that species, *C. Stonei platytænium*, an exceedingly scarce plant, is observed, three healthy pieces growing well, but not now in flower. *C. Lawrenceianum*, *C. superbiens*, *C. selligerum*, *C. Godefroyæ*, *C. Leeannum superbum*, *C. lævigatum*, and *C. vexillarium* are all in first-rate condition. A strong example of *C. grande* is similarly fine, and near it is the valuable *C. Morganianæ*, a most vigorous plant, probably the largest in cultivation.

A house is devoted chiefly to fine masses of *Coelogyne cristata* and its best varieties, some 3 feet square. Adjoining this is a *Nepenthes* house, and then we pass into the cool Orchid house, which is extremely gay now. *Odontoglossum vexillarium* is well grown, plants in 6 and 8-inch pots having twelve to twenty racemes each, some of the flowers 4 inches across the lip and others very richly coloured. *Dendrobium infundibulum* and *D. Jamesianum* are flowering well, plants of the latter having twenty-three large flowers each. *Odontoglossum Halli* and *O. crispum* are represented by large plants and fine varieties, but one of the most remarkable specimens is an *Oncidium macranthum* with five racemes, bearing a total of 141 flowers. The plant is placed in the centre of the bed, and the racemes are trained to each end. Numerous *Masdevallias* of the *Harryana* and *Veitchi* types impart much rich colouring to the display, and several curiosities like *M. Trochilus* and *M. Winniana* are included. In another small house are grown the choice *Odontoglossums* that have obtained such remarkably high prices—namely, *Knox's* variety of *O. crispum*, *O. crispum apiatum*, *O. Sanderianum*, *O. Veitchi* (mirabile), *O. Pescatorei*, *Veitchi*, and *Schroederianum*, *O. Ballantinum*, and others which are well known as the most beautiful forms yet obtained. In other houses and pits *Calanthes*, *Phalænopses*, *Cymbidiums*, *Vandas*, *Odontoglossum vexillarium*, and innumerable others are grown, but these notes are assuming such a formidable length that they can only be incidentally mentioned.

#### FRUIT AND PLANT HOUSES.

As already intimated, the Orchids do not engross the whole of the gardener's attention, and the fruit houses form an important department. There are two ranges of vineries, each about 100 feet long, the vines bearing excellent crops of fruit, the earliest having been fit for table since Easter. Then there are Plum and Peach cases covering a wall 300 feet long, and comprising healthy trees of all the best varieties, from which crops of fine fruit have been obtained for several years. Pits are devoted to Melons, Cucumbers, Pine Apples, Amaryllises, Strawberries, Gardenias, and Ferns. A flower house is gay with Tuberous Begonias, Carnations, Petunias, Gladiolus, Spiræas, Pelargoniums, and Roses, and a stove contains, amongst a general collection, the grandest specimen of *Anthurium Veitchi* we have seen, having about thirty leaves, the blade 4 to 5 feet long. Concerning these and the well-kept kitchen garden much might be written, and to all equal praise must be accorded, for no visitor can leave The Dell without the feeling that he has inspected a really model garden.

#### THE NORTON PANSY CLUB.

KING'S NORTON and King's Heath, together with the Moseley district, forms one of the outskirts of Birmingham, away out of the smoke of the

town, and a district where gardening pursuits can be followed with considerable pleasure. A few amateurs interested in the Pansy resolved upon forming a small Society for the purpose of further developing a taste for Pansies and Violas in the locality of Birmingham, and the first Exhibition of the new Society was held in the King's Heath Institute, a very suitable place for such an Exhibition. Being a very recently formed Society the local exhibitors were but few, but some excellent blooms were staged, and there appears to be a determination amongst the members to make a much larger exhibition last year. In the amateur classes Mr. James Sinkins, both for eighteen and twelve blooms, with very fine flowers; My Lady, William Cuthbertson, Mr. T. McComb, Grace Rudgard, and Miss Orkney, being the most striking in these stands. Mr. A. Hunt was second for twelve blooms, Miss Reeve, Charles Stansell, and May Tate being very fine. Mr. T. A. Eaves was placed third. For six Fancy Pansies Mr. C. E. Scarse was first with a nice lot, which included a very fine bloom of Major Skrimme. Mr. John Innes was second, his blooms of Charles Stansell, May Tate, and Evelyn Bruce, very good.

In the open classes Mr. I. H. Patterson was first for twelve, also for six Fancy Pansies, his finest blooms being Mrs. E. H. Wood, Lightning, and Mrs. Jameson. For twenty-four blooms Mr. Hughes set a very fine stand, and was placed first, Catherine Agnes, Mrs. J. P. Frame, Charles Stansell, Evelyn Bruce, and a seedling Ingomar, an R. K. Mitchell style of flower, and of great quality. There were only two exhibitors of Pansies in pots, just ordinary plants not long since potted. The exhibitors have much to learn in the culture of Pansies in pots.

Messrs. R. P. Laird & Sons, Edinburgh, sent about 100 superb blooms of Fancy Pansies, not for competition, the flowers being remarkably fine in every respect and rich in colouring. Princess Beatrice, Evelyn Bruce, Campbell-Bannerman, Duke of Grafton, Mrs. Duncan, William Dick, Pilrig, Mrs. J. Downie, Alfred Mitchell, and James Gardiner were amongst the most striking; also a wonderfully fine bloom of William Dean, which was singled out as one of the finest flowers in the exhibition. May Tate was extensively exhibited throughout the Exhibition, but varied in its marking of the top petals.

Mr. John Forbes, florist, Hawick, sent, also not for competition, a very fine lot of quite 150 blooms of Fancy Pansies, including two grand seedlings not named, 36/85 and 95/85. His blooms throughout were fine, especially George Innes, Miss Neeve, Bob Montgomery, Mrs. McIntosh, William Dean, Pilrig, G. O. Trevelyan, and Lord Rosslyn. Violas had but one exhibitor for competition in Mr. Cooper, gardener to the Right Hon. Joseph Chamberlain, M.P. Mr. Wm. Dean, Walsall, staged a very fine collection, not for competition. Mr. Chamberlain's residence, Highbury, is close to King's Heath, where the exhibition was held, and Orchids and stove and greenhouse plants were sent by Mr. Cooper; and Messrs. Pope & Son, nurserymen, contributed a handsome group of Orchids and other plants, including a fine specimen of the finest of all the Golden Tricolor Pelargoniums, Mrs. Henry Cox, and a lot of extremely fine Fancy Pansy blooms. Mr. Hans Niemand contributed a beautiful group of plants, including *Hydrangea paniculata grandiflora*, with immense heads of flower; *Nephrolepis Baueri*, *Onychium auratum*, a lovely Fern, and the new *Adiantum rodophyllum*. Mr. R. H. Vertegans contributed a good collection of cut herbaceous and alpine plants.

#### ROYAL HORTICULTURAL SOCIETY.

JUNE 22ND.

HARDY flowers were remarkably abundant at this Exhibition, and the conservatory had a particularly gay appearance. Roses, Pelargoniums, and miscellaneous contributions all added to the extent and beauty of the Show, which was one of the most interesting held at South Kensington this season.

Classes were specially provided for Pelargoniums and Roses, but although the prizes were good they did not bring many competitors, and the greatest portion of the Show was composed of the miscellaneous groups not in competition. Messrs. Paul & Son, Cheshunt, were the premier exhibitors of Roses in pots, securing the first prize for thirty plants, standards and dwarfs, in capital condition; Mr. W. Rumsey, Waltham, following with smaller plants, all dwarfs. For cut Roses Mr. G. Prince, Oxford, took the lead with twenty-four superb blooms, mostly Tea varieties; Messrs. Paul and Son and W. Rumsey securing the second and third places with mixed collections of Teas and Hybrid Perpetuals, but the latter predominated. Show, decorative, and fancy Pelargoniums were well represented in a collection from Mr. C. Turner, Slough, for which the first prize was awarded, but Zonal varieties were not of remarkable merit, those from Mr. H. Little being much the best. Cut blooms of Pelargoniums were shown by Major Scott, Wray Park, Reigate (gardener Mr. Morgan), and Mr. E. M. Nelson, very bright samples of good varieties, the first and second prizes being awarded to the exhibitors in the order named.

Miscellaneous groups were especially numerous, and alone would have constituted a beautiful exhibition. Messrs. Kelway & Son, Langport, had extensive collections of choice Pæonies, Pyrethrums, double and single, Gaillardias, and hardy flowers. The Pæonies were particularly beautiful, three being selected for certificates, and a silver-gilt Banksian medal was awarded for the group, which was one of the best the firm has shown this season. Mr. T. S. Ware, Tottenham, had a magnificent display of Irisse, Ixias, Lilies, Pyrethrums, Pæonies, and hardy flowers. Very handsome were the rose-and-white blooms of *Cypripedium spectabile*, the deep blue *Iris siberica orientalis*, the rich scarlet *Papaver orientale*, and floriferous blue *Polemonium Richardsoni* (silver-gilt Banksian medal). Messrs. Barr & Son, Covent Garden, obtained a silver medal for groups of single and double Pyrethrums, Pæonies, English and Spanish Irisse, double Ranunculuses, Foxgloves, and many other handsome flowers. Messrs. Paul and Son, Cheshunt, were awarded a silver-gilt Banksian medal for a large and varied collection of hardy flowers, which contained a number of choice species of herbaceous plants as well as specimens of ornamental shrubs. R. J. Measures, Esq., Camberwell Lodge, Flodden Road, Camberwell New Road, S.E., exhibited a handsome group of Orchids tastefully arranged with Ferns, and the silver-gilt medal awarded was well merited. The plants were of moderate size, comprising *Cattleyas*, *Masdevallias*, *Dendrobiums*, *Epidendrum vitellinum*, *Ionopsis paniculata*, *Cypripediums*



and many others of good varieties, and bearing abundance of flowers. A silver medal was awarded to Messrs. W. Paul & Son, Waltham Cross, for an interesting group of ornamental hardy shrubs and trees, including the golden Quercus Concordia, the golden variegated Chestnut, the Purple Oak, Quercus purpurea, the dark purple Prunus Pissardi, the Purple Hazel, several good early Clematises, and a choice collection of lovely Scotch Roses, together with the bright yellow Austrian Briar, Harrisoni, and the orange red Austrian Copper.

Bronze medals were awarded to the following:—Mr. G. Priuce, Oxford, for some charmingly fresh Tea Roses; Messrs. Hooper & Co., Covent Garden, for Petunias, and a tasteful group of Gloxinias and Ferns; Messrs. E. H. Krelage & Son, Haarlem, for a superb collection of Pæonies, most varied in colours; Major Leudy for a handsome specimen of Cattleya Mossiæ, about 4 feet in diameter, and covered with flowers; and to John Henshaw, Esq., Harpenden Schools, Herts, for six collections of hardy flowers from boys at those schools. They were tastefully set up, accurately named, and comprised some rare species.

**FRUIT COMMITTEE.**—Present—Harrison Weir, Esq., in the chair; and Messrs. W. Warren, T. J. Saltmarsh, G. T. Miles, G. Norman, John E. Lane, Arthur W. Sutton, Phillip Crowley, T. B. Haywood, F. Rutland, W. Denning, T. Francis Rivers, J. Burnett, G. Bunyard, R. D. Blackmore, John Woodbridge, and Dr. Robert Hogg.

The exhibits before this Committee were not very numerous nor of remarkable merit. Mr. Lockie, gardener, Oakley Court Gardens, Windsor, sent fruit of Melon Oakley Court, a cross between Dr. Hogg and Egyptian Green-flesh, a green-flesh variety of excellent flavour, which has been shown on several occasions in good condition. Messrs. J. Carter & Co., High Holborn, exhibited samples of Knickerbocker Radish, which had been grown from seed sown in the Chiswick Garden on May 12th; they were not of unusual size, and were passed. Mr. C. J. Jarman, Chard, Somerset, sent a seedling Apple of no special merit. Messrs. J. Veitch & Sons, Chelsea, showed a plant of Fig Pingo de Mel, which was thought to be Angelique. Sir Samuel Davenport, Australian Commissioner, exhibited fruits of Chinese Quince, a variety of Cydonia japonica, with oval yellow fruits about 6 inches long and 4 in diameter, with a firm astringent flesh.

**FLORAL COMMITTEE.**—Present—James O'Brien, Esq., in the chair; and Messrs. J. Douglas, E. Hill, H. Turner, J. Hudson, R. Dean, S. Hibberd, H. J. Lendy, H. M. Pollett, J. Dornay, C. Noble, H. Herbst, W. Wilks, J. Walker, W. Bealby, H. Cannell, Dr. M. T. Masters, W. Holmes, H. Ballantine, H. Bennett, and G. Paul.

From the Royal Gardens, Kew, were exhibited plants of the beautiful Ceylon Gentian, Exacum macranthum, a biennial introduced in 1853. The flowers are a bright purplish blue with bright yellow anthers. They are borne at the tips of the branches and last for several weeks. From the same gardens came plants of Streptocarpus Dunni, a new plant found at Spitzloop Transvaal Goldfields at from 3000 to 6000 feet elevation. Seeds were sent to Kew by E. J. Dunn, Esq., in November, 1884. The leaves are 2½ feet by 1½ foot across, of a curious greyish green colour, and puckered on the surface. The flowers are tubular, of a dull reddish colour, and are produced most abundantly. Votes of thanks were awarded for these plants, and the information recorded on the labels was very useful, and the practice might be imitated more generally by giving some particulars concerning the origin of plants exhibited. W. E. Hubbard, Esq., Leonardslee (gardener, Mr. S. Ford) showed a plant of Protea named Hubbardi provisionally. It had thick oval smooth leaves, and a terminal head of flowers 8 or 9 inches in diameter, and surrounded by tapering silvery red bracts. Some members of the Floral Committee objected to the name, and thought the plant was an old one, but it was not determined. Messrs. Sander & Co., St. Albans, showed a plant of Odontoglossum chiriquensis, with bright brown flowers, the sepals and petals undulated on the margin, the lip yellow at the apical half. They also showed a plant of Zygopetalum obtusatum growing on a Tree Fern, the leaves narrow and grass-like, the flowers like a small Z. maxillare. Dr. Duke, The Glen, Lewisham (gardener, Mr. Noakes), showed a variety of Odontoglossum vexillarium named guttatum, the lip curiously dotted with white. Mr. Bleu, Avenue d'Italie, Paris, had a Cypripedium, apparently javanicum superbieus, much like the species bearing the latter name. John A. Whittard, Esq., Streatham Hill (gardener, Mr. H. Wright), sent a magnificent specimen of Gymnogramma schizophylla gloriosa. Mr. T. Church, St. Margaret's, Twickenham, had a basket of Ivy-leaved Pelargonium blooms, bright and pretty. A vote of thanks was accorded to Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, for extremely handsome pitchers of Nepenthes Mastersi and large flowers of Cattleya Wagneri very pure in colour.

Mr. J. Douglas, gardener to F. Whitbourn, Esq., Great Gearies, showed flowers of Lælia majalis, very large and of good colour, for which a cultural commendation was awarded. Mr. Douglas grows the plant in a sunny position, where the plant has a thorough ripening. Mr. R. Dean, Ealing, had a box of single striped Petunias, gathered in the open ground. M. Godefroy Lebœuf, Argenteuil, Paris, sent a Begonia named Arthur Mallet, a hybrid from B. sub-peltata and B. Rex, with bright reddish leaves and dark green veins. Mr. J. H. Beach, Sevenoaks, sent a white Gloxinia named compacta, very dwarf and free. E. B. Foster, Esq., Clewer Manor, Windsor, exhibited a plant of Pelargonium corinna with large well-formed flowers, the upper petals dark crimson and the lower pink. Mr. W. Stacey, Dunmow, exhibited four dozen trusses of Verbenas, representing the beautiful varieties which has been obtained by this raiser. A vote of thanks was accorded for the collection. H. Little, Esq., Twickenham (gardener, Mr. Hill), exhibited a fine variety of Lælia purpurata with large dark-coloured lips. Mr. R. Owen, Maidenhead, exhibited stands of Ivy-leaved Pelargoniums, comprising some beautiful varieties, for which a vote of thanks was accorded. Plants and flowers of Chrysanthemum segetum Cloth of Gold were also sent.

#### CERTIFICATED PLANTS.

*Thunia Veitchiana* (Messrs. J. Veitch & Son).—A hybrid between T. Marshalli and T. Bensoniæ, which has been previously certificated at the Regent's Park. The sepals and petals are narrow, white faintly tinged with purple, the lip veined pale crimson, with numerous yellow filaments in the centre.

*Doronicum draytonensis* (Paul & Son).—A variety with large flower heads 3 inches in diameter, the florets narrow and bright golden yellow.

*Thuopsis borealis lutea* (W. C. Slocock, Woking).—A compact habited variety, the shoots tipped with bright yellow.

*Petunia Empress* (Hooper & Co.).—A handsome double variety with fine freely produced bright rose flowers. An excellent variety for decorative purposes.

*Double Pæonies* (Kelway & Son).—*Queen Victoria*, pale blush, very full and compact. *Princess of Wales*, large, open, blush, broad petals. *Princess Beatrice*, a pretty variety with pink outer guard petals, and a dense pink and white centre.

*Cattleya Mossiæ Arnoldiana* (C. Hill, Esq.).—A white variety with well formed flowers, the lip stained with crimson.

*Odontoglossum vexillarium purpureo-radiatum* (Baron Schröder).—A variety with fine flowers, the lip marked with radiating crimson lines.

*Begonia Arthur Mallet* (Godefroy-Lebœuf).—A pretty foliage variety from B. sub-peltata and B. Rex, the leaves of a deep rosy red and veined with dark green, not unlike some of the Bertolonias.

**SPECIAL PRIZES.**—Messrs. Sutton & Sons, Reading, offered prizes for Melons, two of which were won by Mr. T. Lockie, gardener to the Hon. G. O. Fitzgerald, Oakley Court Gardens, Windsor, with Sutton's Imperial, very fine; and by Mr. Ward, gardener to the Earl of Radnor, Longford Castle, Salisbury, with Hero of Lockinge, neat and well netted. Messrs. J. Carter & Co., High Holborn, also offered prizes for Blenheim Orange Melon, which were won by Messrs. Lockie and Ward with good fruits, and their prizes for Model Cucumbers were adjudged to Mr. Lockie, Mr. Phillips, The Deodars, Meopham, and Mr. J. Bolton, gardener to W. Spottiswood, Esq., Combo Bank, Sevenoaks in the order named.

#### SCIENTIFIC COMMITTEE.

Dr. M. T. Masters in the chair.

*Phycomyces splendens*.—Mr. W. G. Smith reported on the specimen sent to the last meeting by Mr. Wills, and found that Mucor mucedo was growing on decayed parts of it; that it produced enormous sporiferous sacs containing 3000 spores; they were five times greater than those of M. mucedo, and the supporting stems were 4 inches high. It is a very rare fungus as far as is known at present.

*Peronospora arborescens* on *Papaver dubium*.—He exhibited specimens in which this fungus had attacked the peduncles, completely stripping off the epidermis in many places, and causing the stalks to be spirally or otherwise twisted with remarkable contortions.

*Coniferous Seedlings attacked by Fungi*.—The following communication was read from Mr. Brace, near Salbris, Loir et Cher, France:—

"The few Pine seedlings forwarded to the Scientific Committee are of this season's showing, and are attacked by a virulent form of fungus. I would feel greatly obliged if you could kindly aid in identifying the fungus, and give me any information as to the cause of its appearance, &c. I attribute it chiefly to the unusually cold and wet season that we have had. It has been felt most severely in the seeds of P. Laricio, in which I have lost fully 25 per cent.; but it attacks also P. sylvestris and P. austriaca as well. At present it seems to be dying out, but I am still in great fear of its breaking out again. Now that a little dry weather has set in I am about to try the effect of flowers of sulphur out of a sulphurator, as the only remedy that I can think of as likely to succeed. A plant that is visibly attacked seldom shows signs of life after the third or fourth day. It does not attack transplanted seedlings. My partner, Mr. David Cannon, forwarded samples both to Paris and Versailles for identification, but it seems to be hitherto unknown."

Mr. Smith had examined the seedlings, and found the cotyledons and radicles thoroughly infested with fungus, which was bursting through the surface. The parasite had, no doubt, been derived from the parent tree when in fruit. The following were the fungi:—On Larch seedlings *Cœoma Laricis*; on Pinus sylvestris *C. pinitorquum*; and on Pinus Picea *C. Abietis pectinata*.

*Morchella crassipes*.—Mr. Boulger mentioned his discovering a fine specimen of this fungus, 1 foot in diameter, near Maidstone, in the museum of which it has been preserved. It was new to Kent, though had been found in Kew Gardens and several other places.

*Humea elegans* with *Peronospora leptosperma*.—Mr. Murray alluded to specimens of Humea sent to him for examination, and found that their decay and death was apparently due to that fungus.

*Illustrations of Monstrous Orchids*.—Mr. T. G. Hansen exhibited some beautifully executed drawings of Phajus grandifolius, Odontoglossum crispum, &c., showing variations in the structure of the flowers, mostly with three labella. The extra ones appeared to occupy the position of arrested stamens. In some the labellum was arrested, but two supplementary and apparently more or less rudimentary stamens occurred. A vote of thanks was given to Mr. Hansen for his communication.

*Eucalyptus globulus* Injured by Frost. —Mr. Smee inquired as to the experience of others upon the injury received by species of Eucalyptus during the late prolonged winter. He remarked that all his had perished excepting four trees. One of them was in a pot which had been completely frozen through. A second had been in a dry situation, but all that were planted in moist ground had perished. He noticed that those which were breaking again bore leaves similar to young ones, though they had previously produced the scimitar-shaped leaves. Mr. Lynch remarked that specimens of E. Gunnii were injured at Cambridge more this year from the prolonged period of cold than in previous winters with lower temperature.

*Plants Exhibited*.—Mr. Lynch brought the following plants from the Botanic Gardens, Cambridge:—*Pterocarya caucasica*. This derives an advantage from having more than the usually single axillary bud. There are two or three supra-axillary buds to each node, and the first shoots that grew this year were killed by the frost. Another bud, between the leaf-scar and the dead shoot, then arose from each node, and has developed to take the place of the one killed. *Helicodiceros muscivorus* (Arum crinitum). This plant had caught a great number of flies, which had perished round the base of the spathe without letting them go again. It "resembles Arum maculatum, but attracts carrion flies by means of its strong odour of putrid flesh. The smaller visitors are held fast by sticky hairs in the floral chamber and digested" (Müller, D'Arcy Thompson's translation, p. 564). The hairs in the tube did not appear to dry up as in A. maculatum, perhaps in consequence of this being a moist climate, so that the flies could not



escape to fertilise other plants. *Rhododendron myrtifolium* (ponticum var.) from Gibraltar. This is an uncommon and distinct form, with very compact small trusses of bright pink flowers. *Rosa punicea* (R. lutea var.), S. France, and Austria, of a fine colour. *Pyrethrum tenacitfolium*. This is a rare plant and very pretty. *Gunnera manicata*, showing a remarkably fine inflorescence; *Dianthus*, hybr. between *D. barbatus* and *D. alpinus*, *Linaria anticaria*—the flowers exhibit a beautiful system of lines; *Primula Parryi*, and *Hedysarum multijugum*.

*Protea sp.*—A very fine plant with a terminal inflorescence was exhibited by Mr. Hubbard, of Leonardslee. The specific name was undetermined.

*Zygopetalum obtusatum*.—Received from Messrs. Sander, of St. Albans. Mr. O'Brien observed that this was a rare Orchid, and formed the original type species of the "section" ending with *Z. Gautieri*. It is a native of Brazil. A botanical certificate was awarded for it.

*Azalea occidentalis* (?).—Fine sprays were received from Mr. Anthony Waterer, who obtained it from Professor Sargent. It appeared doubtful whether it was a true species or not. Professor MacOwan, who was present, remarked that species occurred in the Columbia Valley, but appeared to be different from the specimen in question. He kindly undertook to examine it.

*Chionanthus virginicus*.—Specimen of flowering shoots from this hardy shrub from North America were received from Mr. Waterer. Dr. Masters remarked upon this as one of the several Japanese "representatives" to be found on the eastern side of North America.

### ROYAL METEOROLOGICAL SOCIETY.

THE concluding meeting of this Society for the present session was held on Wednesday evening, the 16th inst., at the Institution of Civil Engineers, 25, Great George Street, Mr. W. Ellis, F.R.A.S., President, in the chair. The Rev. J. R. Boyle and Mr. H. B. de la Poer Wall, M.A., were elected Fellows of the Society.

The following papers were read:—1, "Note on a Sudden Squall, January 13th, 1886," by Mr. R. H. Scott, F.R.S. This is an account of a remarkably sudden squall of about ten minutes' duration which passed over the south of England on the morning of January 13th. It was first recorded at Falmouth at 8.20 A.M. and passed over London at 10.40 A.M.

2, "The Floods of May, 1886," by Mr. F. Gaster, F.R.Met.Soc., and Mr. W. Marriott, F.R.Met.Soc. The month of May, 1886, will long be remembered for the heavy rains that occurred between the 11th and 13th, and the floods they produced over the greater part of the west and midland counties of England. In fact at Worcester the flood was higher than any that have occurred there since 1770. On the 11th and 12th heavy rain fell over the east of Ireland, there being over 3 inches during these two days at several places in Counties Down, Dublin, and Wexford; the greatest reported being 3.52 inches at Kilkeel, County Down. Over the other parts of the United Kingdom the rainfall on the 11th was under 1 inch. Rain, however, commenced falling about noon on Tuesday over the midland counties, and continued with increasing intensity till Friday morning; the duration at most places being about sixty hours. The heaviest rainfall occurred in Shropshire, where over 6 inches fell at several stations, while at Burwarton as much as 7.09 inches was recorded; the amounts for each day being—0.60 inches on the 11th, 3.10 inches on the 12th, and 3.39 inches on the 13th. Very serious floods followed these heavy rains. At Shrewsbury the extreme height of the flood on the Severn was 16 feet, and at Worcester 17 feet 1 inch above the average summer level. At Ross the flood on the Wye was 14 feet; at Nottingham the rise of the water in the Trent was 12½ feet; at Rotherham the flood was 8 feet 5 inches; and in north-east Yorkshire the Derwent rose to nearly 11 feet above summer level. These floods caused great damage to property and loss of life, bridges were washed away, railway traffic suspended, and thousands of workmen thrown idle. In several places the waterworks were flooded and the towns' water supply was consequently cut off. Mr. Gaster drew attention to the complex character of pressure distribution during the time referred to, and showed how the region of maximum rainfall followed certain of the shallow depressions which appeared over the British Islands. He drew attention to the peculiarities of this type of depression, showing how in many, if not in most cases, the rainfall was heaviest in their rear, and was brought by the easterly, not by the westerly wind. He also referred to some previous instances of heavy floods, in which similar atmospheric conditions prevailed, and explained how it was that as the disturbance passed off snow fell instead of rain, this in its turn being followed by severe cold and in some places frost.

3, "On Atmospheric Pressure and its Effect on the Tidal Wave," by Captain W. N. Greenwood, F.R.Met.Soc. The object of this paper is to show how a little knowledge of weather forecasting, with some practical knowledge of local weather changes, and a good barometer will go far towards forming a right correction for application to the predicted height of the tide, and also to determine what that correction should be in its relation to the fluctuations of the barometer and the prevailing gradient.

4, "Meteorological Results at Levuka and Suva, 1875-1885, with Notes on the Climate of Fiji," by Mr. J. W. Vaughan, F.R.Met.Soc. The climate of Fiji is remarkably healthy. Diseases such as fevers of an aggravated and malarious character, cholera, and liver complaints are unknown.

### HOW ODONTOGLOSSUMS ARE COLLECTED.

ALTHOUGH the geographical range of *Odontoglossum crispum* is comparatively limited, there is a marked difference in the varieties found in various localities. The Pacho Mountains is the home of the finest forms, and here the plants grow on the lower branches of the forest trees in company with *O. gloriosum* and *O. Lindleyanum*, two inferior species in point of beauty, but which have, perhaps, in a great measure been instrumental in producing the beautiful narrow-petaled supposed hybrids, such as *Andersonianum*, *Ruckerianum*, *Jenningsianum*, and others. It is peculiar that, whereas the starry-flowered forms, similar to Lindley's type specimen, abound exclusively on the north of Bogota, the woods on the

south, about ten days' journey distant, are rich in the fine round-flowered varieties. Although this Orchid is imported in larger numbers than any other from South America, the risks and expenses are not slight even now. In our case we purchase the exclusive right to collect plants in the woods in certain districts; natives are employed to gather them, for which purpose parties of from four to eight go into the woods, returning in about a fortnight with the result of their labours. After the plants have been cleaned and prepared, and kept on wooden stages for several weeks, they are ready for packing.

They are then fastened to stout sticks, and these are fixed in wooden boxes, so as to leave air space around them. The cases are carried on mule-back to Bogota, a journey of about ten days, and here they are received by an agent, who sends them by mules to Honda, which is reached in another six days. This place is situated on the River Magdalena, and here the cases are put on board a river steamer, which takes them to the seaport town of Savanilla, a journey occupying about five days. Owing to the intense heat on the river journey the plants often perish. The cases then come, as a rule, by mail steamer, *via* Colon and St. Thomas, to England, the passage being made in about twenty-seven days. The risks, therefore, of importing this Orchid are great, and owing to the peculiarly soft nature of the plants they are so liable to decay that in some instances seven-eighths of the consignment are dead on arrival here. The havoc made in the native forests, too, must be considerable, for we calculate that for every three plants actually established in European gardens a tree has been felled.—(*Reichenbachia*.)

### ROSE AND HORTICULTURAL SHOW FIXTURES, JUNE AND JULY, 1886.

THE following are the dates of the principal Shows to be held during June and July this year. The great event of the season will be the provincial Show of the Royal Horticultural Society at Liverpool next week.

York Floral Fête, June 23rd to 25th.

Royal Horticultural Society Provincial Show at Liverpool, June 29th to July 5th.

Bagshot and Windlesham Rose Society, at Bagshot, Tuesday, June 29th.

Canterbury and Kent Rose Society, at Canterbury, Tuesday, June 29th.

Diss Horticultural Society's Rose Show, June 30th.

Royal Botanic Society's Evening Fête, June 30th.

Farningham Rose and Horticultural Society, at Farningham, Wednesday, June 30th.

Croydon Horticultural Society, at Croydon, Wednesday, June 30th.

Reigate Rose Association, at Reigate, Thursday, July 1st.

Tunbridge Wells Horticultural Society, at Tunbridge Wells, Friday, July 2nd.

Brockham Rose Association, at Dorking, Saturday, July 3rd.

Eltham Rose and Horticultural Society, at Eltham, Saturday, July 3rd.

Crystal Palace Rose Show, Saturday, July 3rd.

National Rose Society, at South Kensington, Tuesday, July 6th.

Cardiff Rose Society, at Cardiff, Wednesday, July 7th.

Sutton Amateur Rose Society, at Sutton, Wednesday, July 7th.

Oxford Rose Show, Wednesday, July 7th.

Ealing, Acton, and Hanwell Horticultural Society, at Ealing, Wednesday, July 7th.

Bath Floral Fête and Band Committee, at Bath, Thursday, July 8th.

Ipswich and East of England Horticultural Society, at Ipswich, Thursday, July 8th.

Hitchin Rose Society, at Hitchin, Thursday, July 8th.



### FRUIT FORCING.

FIGS.—*Second Crops*.—Fruits in early houses have now swelled to a good size, and if judiciously thinned there will be a crop of fine Figs. This, however, depends upon their not being overcropped, the foliage being kept free from insects, and liberal feeding. If the crop is heavy, the former thinning not having been sufficient, a second thinning should take place at once, leaving the most forward at the base of the shoots, which will ripen earlier than the others, and so afford more time for the ripening of the growths. Early-forced planted-out trees should have the young growths ripened and be resting by the middle of October.

*Watering*.—If the borders were allowed to get dry when the first crop of fruit is ripening, they must be watered repeatedly through a mulching of a stimulating kind until the soil is thoroughly moistened down to the drainage. Liquid manure will be required by trees having their roots in borders of limited extent, and more frequently than by trees with a larger extent of rooting area; about once a week in the first case, and every fortnight in the other, giving thorough supplies, and always in a tepid state. The mulching should be kept wet so as to encourage surface roots.

*Insects*.—Syringing will need to be practised twice daily, except in



dull wet weather, when the trees will require to be syringed so that the foliage gets dry before night. Forceful springings are usually sufficient to keep red spider in check, but if it get a footing it must be dislodged of taken in time there is no better plan than syringing the leaves with a soft soap solution, 3 ozs. to the gallon, and scale may be removed from the wood by using a brush. Painting the pipes with sulphur is an effectual remedy. The pipes should be heated to over 160°, and whilst hot painted with sulphur brought to the consistency of cream with skim milk. The house should be closed, the foliage dry, and the pipes kept hot for an hour at least after the sulphur is applied. They should then be allowed to gradually cool, syringing forcibly the following morning.

**Temperature and Ventilation.**—Artificial heat will not now be necessary unless the weather is unusually cold and wet, then fire heat will be necessary to maintain a night temperature of 60° to 65°, and 70° to 75° by day. Ventilate early, especially on bright mornings. Keep through the day at 80° to 85° with sun, and close sufficiently early to run up to 85° or 90°, or even 95°, providing plenty of atmospheric moisture.

**Succession Houses.**—**Fruit Ripening.**—With the fruit changing colour afford more air, insuring a circulation constantly, and a free movement of the atmosphere, by top and bottom ventilation, whenever circumstances allow. Gradually reduce the moisture, keeping it from the fruit, and exposing the fruit as much as possible to the full influence of light and air. A well-ripened Fig is delicious, whilst a badly ripened one is the most insipid of fruits. Lessened supplies of water will be needed at the roots, but they must not be allowed to suffer, therefore keep the soil moist, and the surface should be occasionally damped, indeed, it must be kept moist so as to preserve the surface roots. In order to keep down red spider, a thorough washing may be given the trees after the fruit has been closely gathered, and this repeated each time the fruit is gathered will keep the insects under until the crop is gathered, when more radical means can be employed for its eradication. If done sufficiently early on a fine day the fruit will not be in the least deteriorated, but the water must be soft, clear, and tepid.

**Trees Swelling their Crops.**—Mulch the borders with short manure 2 or 3 inches thick. Water through the mulching with tepid water, and in the case of trees carrying heavy crops and not having a tendency to over-luxuriance with liquid manure. It is hardly possible to over-feed Figs in well drained, properly constituted borders, and with the roots confined to limited areas. Wide, deep borders of rich material are great evils, and very unsatisfactory in results. The trees grow beautifully, but that is the extent of their utility. Syringe twice a day in fine weather, and always in good time in the afternoon, closing the house at the same time, and so as to gain enough sun heat to rise up to 90° or 95°. As the fruit approaches ripening admit a little air at the top of the house before night-fall. The grand secret of avoiding scorched leaves and scalds of all sorts is early rising, early ventilation—moisture deposited through the night dissipated by the rising sun. Evaporation, elaboration, and assimilation should always be sought in the day by commencing ventilation early, increasing with the sun's power, and growth sought by staying evaporation and restoring the wasted energies of the plants by a genial atmosphere, which is best effected in the early part of the closing day by sun heat and a moist atmosphere. This insures rest at night, the temperature being allowed to fall to a safe minimum.

**Late Houses.**—Figs are not so much grown in cool houses as they deserve. The fruit is of the most wholesome kind, and they make a grand addition to desserts. Narrow borders of calcareous soil well drained, and a light well ventilated structure, afford excellent results. The chief things are to grow thin, feed highly, ventilate early, and utilise sun heat by early closing. Keep the growths thin, stop at the fifth leaf—i.e., side growths, and keep the borders well mulched and watered. The trees will ripen one full crop in August, after which it is advisable to let the shoots grow up to the glass so as to get the young growths well ripened.

**MELONS.**—**Houses and Pits Cleared of Fruit.**—Prompt decision must be made as to whether the plants are worth keeping for a second crop. If the plants are healthy, and not infested with red spider, they may be reserved for a second crop, in which case growths should have been retained and encouraged in the latter stages of the first crop, and a good set will have been secured in these whilst the structures were kept drier for the fruit ripening. The old growths in this case should be cut away, but not all at once, as that would give a check, reserving the best of the growths, and any cuts that bleed should be dried with quicklime. Remove a little of the surface soil, and supply a malleable loam. Soak with tepid water, and follow at once with tepid liquid manure. Mulch with short manure collected, spread in a shed, and turned over two or three times before using as a mulch for the Melons, and are best given a little and often, rather than a heavy mulching all at once. If kept moist the roots will soon spread in the loam. Thin the fruits to half a dozen, or apportion the number to the vigour of the plants; but as the fruit does not attain to so large a size as the first crop, and as this will be the last crop off the plants, more fruits may be taken than is advisable for the first, especially when a second from the same plants is desired. Allow a fair extension of fresh growth, especially if the plants have to be grown on before fruit can be had, as not all varieties are amenable to the continuous system of cropping, and in that case it will be necessary to secure a good growth, and then seek a good set by a drier atmosphere.

**Replanting in Houses, Pits, and Frames.**—If the plants are not in condition for carrying a second crop clear them out at once, removing the soil, and the heat being had from fermenting materials remove a portion of it and add some fresh, mixing it with the fresher of the old, which will revive the bottom heat sufficiently for young plants. Cleanse the

house or structure thoroughly, much success depends on a good start. Plant on hillocks or ridges, or a couple of barrowloads of soil will grow a large plant, and it saves much trouble afterwards. Ram the soil firm, and when warm plant the Melons. Shade from bright sun for a few days, and maintain a moist atmosphere, but ventilate freely.

**Plants Setting Fruit.**—Artificial ventilation is not so essential now as early in the season. Insects of various kinds visit the flowers, and although humble bees and hive bees make most of the staminate flowers, they make mistakes and enter the pistillate and so effect fertilisation, rendering varieties of Melons very sportive and as plentiful as Blackberries in autumn. If, as there sometimes is, a difficulty in getting Melons to set in frames, apply good linings, and admit air freely, ventilating a little at night, so as to prevent the deposition of moisture on the blossoms, as to set the pollen must be dry and the stigmas not destroyed by moisture. Keep the foliage fairly thin, but it is not advisable to use the knife much during setting; still, light and air is essential. Avoid giving water if it can be helped, yet the foliage must not flag.

**Plants Swelling their Crops.**—Add fresh soil to the ridges or hillocks as necessary. Syringe plants in houses at closing time, and damp well down in the morning, and in the evening of hot days. Afford liquid manure copiously, always weak and tepid. Afford supports to the fruit in good time, placing slates under those in pits or frames. Keep the foliage fairly thin, avoiding too distant trimming, as allowing a large amount of foliage to be made and afterwards have to reduce it in quantity gives a serious check, and prolific of gangrene or gumming. Ventilate early or at 75°, keep through the day at 80° to 90° as sun avails, and close so as to run up to 95° or even 100°, with plenty of atmospheric moisture. A little ventilation about 6 P.M. will allow the temperature to fall gradually, any vitiated air escaping. As the fruit approaches ripening reduce the water at the roots, but not to flagging, and admit a little air constantly, withholding water from the fruit. Cracked fruits are mostly a consequence of a moist atmosphere at night.

#### PLANT HOUSES.

**Stephanotis floribunda.**—How frequently these are condemned as being non-flowering varieties when the fault is entirely due to the system of culture that is practised. Those that have failed to flower in the past may be turned into the most profuse flowering plants if the proper treatment be given. To flower *Stephanotis* abundantly it must not be grown in a close, moist, too warm, shaded atmosphere. Under these circumstances it will grow, but certainly fail to flower. If the resting and winter treatment has been right, and the plant is afterwards grown with its shoots trained close to the glass, fully exposed to the sun, and air when the weather is warm admitted daily, large trusses of flowers from every point of the wood are certain. Old wood well ripened will flower freely, but for a long succession of bloom the young growing shoots have to be relied upon. All who have plants in shady moist positions should expose them at once to the sun, and they will be certain, before the season closes, to have a good quantity of bloom from the young wood made very shortly after exposure. During bright hot weather air should be freely admitted, and light shade for two or three hours on hot days will be beneficial rather than otherwise, but, if this cannot be judiciously done without overshadowing, it had much better be dispensed with. It is unnecessary as far as the plant is concerned, but it assists in the preservation of the bloom. If the plant grown is confined at the roots it must be liberally fed with stimulants to encourage growth, for without fresh growth the supply of flowers soon fails. A good mulching of decayed manure on the surface of the soil will prove very serviceable, and the roots will quickly take possession of it. Artificial manures applied to the surface are also good, in fact this is the only form of feeding we practise. It is a great mistake to suppose that this plant will only flower freely when confined in a pot or box and thoroughly crammed with roots. When properly grown as regards light, air, and a moderately dry atmosphere, it will flower most profusely with considerable liberty at its roots. The *Stephanotis*, when the flowers are required for cutting, should always be grown where it is possible to syringe freely twice daily. If the plant is clean to commence with, it can easily be kept free from bug by this method.

**Tabernaemontanas.**—With the flowers of these plants there are generally produced numbers of young growths, which in a large measure hide the flowers. This is not the only drawback, for these growths rob the flowers very much. This can be prevented by their removal as soon as the flower buds are visible and growths are sufficiently large to be picked off. Fine large flowers are the result of this practice, and they open together much better than when the growths are allowed to come away naturally. There need be no fear of injury to the plants by this treatment, for they are certain to break back, and invariably produce more growths than if the first ones that started away had been allowed to remain. Young plants are of great value for various forms of decoration when subjected to this treatment. They can be grown into bushy little specimens, which flower as freely as plants of a larger size. When plants have ceased flowering they may be pushed rapidly into growth and assisted by the aid of liquid or artificial manure to the surface if confined at their root.

**Ixoras.**—Plants of a young vigorous nature as they cease flowering should have their strongest shoots tied out, and the remainder cut back according to their length. If pushed again into growth in a moist close warm atmosphere they will soon commence rapid growth, which if ripened as made by exposure to the sun and air they will flower freely again in due time. Young plants make stronger and much longer growth than old ones that have become woody and somewhat stunted. They



should therefore be confined at their roots and fully exposed, so that they will produce firm sturdy growths which will bear large trusses of flowers. Any growing shoots that may be removed in pruning should be inserted singly in small thumb pots in sandy soil, and plunged in the propagating frame until they are rooted. These, if placed in 3 or 4-inch pots and grown on until they come into flower, will be found invaluable for decoration. Few plants equal *Ixoras* if grown under the influence of plenty of light and allowed to flower in from 3 to 6-inch pots, with from one to four or five shoots. If it is necessary to grow the plants on to a large size as quickly as possible, it is a mistake to allow them to flower. They should be given plenty of root room, and the shoots be pinched from time to time to induce them to branch, and the stronger ones from taking the lead.

*Pavonia Wioti*.—Very few of these plants are of any horticultural value, but the one under notice we obtained last year from Belgium, and it is a truly handsome plant, and worth a place in every stove however limited the collection. For decoration in small pots for front lines of the stove we do not as yet know its equal. It is valuable because its flowering period appears to extend over the greater portion of the year. After one set of flowers fade a few leaves are produced, and then the plant is quickly in full bloom again. If the plant is allowed to grow and flower a long time must elapse before a stock can be raised. The flowers must be removed and the plant forced to make growth if cuttings are to be obtained, the cuttings even persist in flowering. Cuttings are easily rooted in any sandy light soil if inserted singly and plunged in the propagating frame or placed under a bellglass.

## THE BEE-KEEPER.

### INITIATORY INSTRUCTIONS.—No. 4.

A most important time with bee-keepers, and the proper time to prepare hives for the moors or for the subsequent season, is just at the close of the Clover harvest, occurring between the middle and the end of July. The best results will follow in either case by substituting young for all old queens, or those which have done service for twelve months previously. The young fertile mothers which are now to supersede the aged ones ought to be in nuclei and breeding, having been transferred from a strong stock about eight or nine days after its queen had been removed, say a month or more before the anticipated close of the honey season.

These nuclei may be divided as circumstances will admit or the fancy dictate, but six are not too many to form from a strong stock. I am usually successful by making a dozen from one strong stock in a frame hive. One comb containing a royal cell with bees adhering placed between sheets of foundation into a hive capable of holding twelve or more frames, with perfectly close-fitting dividing boards between every three frames, makes four in the one hive, mutually keep each other comfortable; and when there is an entrance at each side, as there should be, there is no possibility of any of the bees or queen making a mistake. Moreover, this plan gives facilities for removing many nuclei a distance for pure fertilisation and at little expense. The outside combs containing much honey, with an excised royal cell inserted wedge-shaped, with but few bees, should be placed near the old site, so as to catch and distribute the flying bees regularly over these combs. The above refers in a great degree to square frame or bar hives. The bee-keeper, however, will from the instructions given understand how to manipulate the octagon Stewarton to obtain satisfactory results. In all cases of introducing young queens it is advisable to cage them sometimes in the immediate vicinity of the bees deprived of their queen before introducing. The queen runs less risk of being killed if introduced singly with any bees, but I do not like to lose the bees that formed the nucleus. To preserve them, and lessen the risk of losing the queen, I had a cage of fine-meshed wirecloth of the proper size to hold two frames, having a slide door on one side and a cover for the top. Immediately after the queen was deposed I put the nucleus with its queen in the cage, and when all the bees had entered I closed it. The moment I observe the bees of the queenless hive show symptoms of the loss of their queen by their excited and frenzied commotion in front of their hive, I insert the cage containing the nucleus in the

centre of queenless hive. If they immediately become quiet and cling loosely to the cage it may be reckoned safe to let the two lots join by drawing the sliding door. Next day the cage may be removed. With the young queen breeding will be carried on briskly, and be in a capital state as a honey-producer at the Heather or for wintering and coming out in spring a strong and profitable hive. Provided it had sufficient natural stores at the beginning of August, or if not had been fed at the above date with not less than 30 lbs. of best sugar made into a proper syrup, with as much water when dissolved and boiled a minute as will form a rich syrup.

Feeding, however, is in every form an evil unless when it cannot be avoided. It is desirable bee-keepers should become impressed with the fact. It is the first duty of bee-keepers, when once in possession of bees, to take care of them. Now, feeding, particularly in the autumn, causes bees to attack others or induces the unfed bees to attack the fed ones. In both cases bees are killed or lost, not only by that, but by the tear and wear of their bodies consequent on the excitement they are unwisely put into by the injudiciousness of the bee-keeper. Then, although none may be actually killed, the queens in many cases will meet with an untimely end from the stranger bees entering the hives as robbers. It is the instinct of bees to kill the queen when they attack the hive. The best and safest time to feed is at night at the close of the honey season. Then covered with thoroughly dried long grass about 5 inches deep on the crown, and slightly on the sides if the hives are single-cased, defend from rain, contract the entrances, and ventilate beneath by ventilating floor; it does not require to be opened—the vacant space is sufficient. Press the grass firm to the top and have the slides drawn. The hives so prepared require nothing more, and need scarcely be looked at until spring, when the bee keeper in search of pleasure finds enjoyment in the bees rifling the unfolding favourite flowers of their nectar and pollen, returning to their hives with their equal-loaded thighs of varied hue, gathered and packed by assiduous labour, but to them a pleasure and happy life.

To find the queen some people are at first at a loss how to detect her amongst the busy throng. All intending bee-keepers should procure one or more queens, and thereby become acquainted with their appearance, and be able to detect the queen when examining the frames, or if of necessity from driven ones or a swarm. But in the majority of instances, where a case open at both ends and of the same diameter of the hive is placed underneath a stock of bees, and having one end an inch or two down filled with excluder zinc, the bees, on being driven from their hive with carbolic paper, will pass through the zinc, but the queen will be found above. The above plan with strong stocks of bees is perhaps the safest and easiest plan of catching a queen.

Hives properly managed up till the end of the Clover harvest should not require any strengthening by joining other bees to them. Those not going to the Heather, but with a young queen added, should by the youthful element produced be all that can be desired, and should be left undisturbed as already advised; but with those going to the Heather, if the young bees are not likely to be hatched in time to be profitable by carrying in the honey, stocks should be doubled or trebled. From the time an egg is laid till the bee is hatched and able to work outside five weeks must elapse. Intending bee-keepers should keep that in mind, because upon the number of adult bees in the hive and the forwardness of the brood depends entirely the amount of honey that will be collected. A young fertile queen introduced to a strong swarm six or seven weeks before the honey glut will give good results, but eight or nine weeks will give extra results, and less than the first-named will be of little use, so where that cannot be managed strengthen the stocks by joining several together. If such hives have a young fertile queen the hive will be quickly filled with brood, and when the honey glut comes the supers will be filled rapidly with what in the absence of a young



queen would have been stored in the body of the hive. By following these directions the delicate super comb is obtained, and the hive is at the same time, by extra breeding, being put into the best condition to stand unharmed the severest and most protracted winter that we have ever experienced in this country, and will be far ahead of those hives having had all the attention and nonsensical manipulations advised by inexperienced teachers, and will collect a much greater quantity of honey.

Smokers are sometimes useful in the apiary. Those giving a great volume of smoke are held in great repute by most bee-keepers; but smoke injures the bees and brood, taints the honey, and is disagreeable to the bee-keeper, so my desire is to banish it as much as possible from the apiary. I have seldom used a smoker, not for many years. Carbolic acid is preferable, and is beneficial to the hive if the bees are not smeared with it, being fatal to them if that is done. A little care in its use will prevent any casualty of that kind.

The foregoing instructions will be found useful both by bee-farmers and the bee-keeper proper. However, the former pursuing the art wholly from a commercial point of view, may perhaps lose patience and fail to adhere strictly to my instructions, thinking that it is impossible to manage bees with profit without adopting the notions which I have pointed out as being so detrimental to successful bee-keeping. Time, however, will convince them of their error. It is not, however, to them so much as it is to the latter class I have endeavoured to impart the information. The bee-farmer will insist that extracted honey is the most profitable. That depends entirely upon the price obtained for it. The main question at issue is the quality in the first place and quantity after. The rules I have laid down secure both with least labour and expense, insuring strong stocks at all times.

There has always been, and will always be, a great difference in the quality of honey. Honey thrown out by the centrifugal extractor is always thin, often so much so that it will not candy. Fermentation is sure to set in sooner or later, and then parts with all its qualities that constitutes good honey. Good samples of drift or pressed honey become solid and hard, but there is no extracted honey that has the delicious flavour that comb honey has. Honey being composed of different sugars and other substances which are required to form good honey, are also of different specific gravity; so that whenever honey is canned the proportions separate—the densest falls to the bottom and the lighter goes to the top. Thus the richness of the honey caused by the natural blend is destroyed. The honey must be retained in the thoroughly sealed combs. Any artificial process to ripen honey or mixing it with foreign ingredients destroys it. A mixture may be made to please certain palates, but no art will improve either it nor the industrious workers that gather it.—A LANARKSHIRE BEE KEEPER.

### INTRODUCING QUEENS.

It was my intention to have written a special article on queen introduction, but after the remarks by your correspondent "A Hallamshire Bee-keeper," at pages 475, 476, there remains but little for me to add, provided bee-keepers will bear in mind "That when bees are queenless, and have no means of rearing one—that is, have no eggs, unsealed brood, or queen cells in their hive, they will invariably accept a fertile queen at the flight hole, or dropped in from the top, provided they have been queenless for forty-eight hours," and may I add, no fertile worker present. All that is necessary for the bee-keeper to do is to remember the above and act accordingly.

There has, no doubt, been much nonsense written upon the introduction of queens direct and otherwise, which has rather baffled the bee-keeper than make the work plain and easy to understand. After bees have been queenless for months, and sometimes for only two days or so, I have caused the bees to follow me, and even enter my pocket after a queen I had presented to them in a cage and then withdrew it. There is no better sign than this that the bees will accept a queen directly if offered. It is when bees have eggs, larvae, queen, or royal cells containing what will emerge a queen in due course therefrom, or a fertile worker, that there is a difficulty in introducing a strange queen, or even a ripe queen cell to. Caging the alien queen then becomes necessary for the purposes of reconciling the bees to her, preventing the latter starting royal

cells, for if one is allowed to remain in the hive or be raised, in almost every case the introduced queen will be killed. Many queens are lost by being introduced when in an excited or frenzied state; when so the bees will ball her, or she will leave the hive and be lost. It is therefore desirable when introducing a queen to close the doorway, so that it is impossible for her to escape.

In addition to what is stated above, I make it a rule to depose the queen exactly eight days before I introduce an alien one. The only precaution required is to make sure that every queen cell commenced is destroyed. I then put the queen into my safety cage, and place it over the bees on the top of the hive. These cages are about 3 inches square and 1½ inch high, having an apartment for the queen, and another for the bees of the hive to come up and fraternise with the queen. A few minutes decide whether I should draw the little slide and let her free. This cage is, I consider, a great improvement upon what is termed the Benton cage. The latter, I may say, was used by me more than twenty years ago, and an acquaintance from the north of Scotland told me the other day he had still the one I sent him eight years ago. I only mention the fact in consequence of the *British Bee Journal* having spoken so highly of the Benton cage, which I quite agree with; and to prevent anyone thinking me guilty of the mean practice of appropriating others' ideas, so common amongst bee-keepers of the present day. In this instance I am rather proud to see the enterprising Benton hit on my own plan without having heard of it. The frame cage I mentioned lately as being similar to the one described by Mr. Blow, I use to preserve the bees forming the nucleus, not the queen. I hope these supplementary remarks to "A Hallamshire Bee-keeper" will be sufficient to guide any inexperienced amateur how to introduce queens successfully.

While on the queen question I observe the *British Bee-keeper's Record* says that bees often use the royal cells for raising queens, a thing I never have seen. It is against the nature of the queen to lay an egg in a queen cell, and it is yet to be proven that bees transfer eggs from worker to queen cells, or from one cell to another.

Mr. W. W. Young, Perth, asks me to do justice and put the matter right regarding who was the first to cause the bees to work ornamental designs. This request is due to the fact that Mr. A. MacNally, Glenluce, claims the invention, although only four or five years a bee-keeper. I would have preferred in this case to have seen the discussion carried out against the erring individual in the journal where it appeared. I cannot say who was the first to start ornamental designs in honeycomb, but I know that there appeared in this Journal many years ago a woodcut of an ornamental glass of honeycomb supplied by "A Renfrewshire Bee-keeper." Twenty-five years ago Mr. John Craig, Stewarton, carried out the system largely, and about the same time I tried my hand, and was very successful with some designs. But in justice to Mr. Young he exhibited at the Caledonian Apian Society's Show, held in Perth some six or seven years since, the arms of Perth, together with the motto in reading, prettily wrought out by the bees. It matters not to bee-keepers who the inventor of anything relating to the apiary is; but when persons claim the invention of anything not their own for mercenary purposes it is wrong, and ought, I think, to be corrected.

A case in point with myself is that of a dealer in supplies—viz., Mr. Abbott—claims to have won a silver medal for the best frame hive at the Kibble Show held in Glasgow by the Caledonian Apian Society in 1876. There were no silver medals awarded at that show. The first prize was awarded to my hive, not to Abbott's; but I agreed to the suggestion of the judges that as Abbott had come so far to the show to encourage him, would I agree, although first, to share the honours with him, to which I agreed. It would have been different, however, had Messrs. George Neighbour & Sons' exhibits been forwarded in time. The goods sent by that firm were too late in arriving to be judged.

At that same show I exhibited a sunshade attached to the hive, which for a hot season or climate was a decided improvement. Somebody before the judging thought it worth their while to lay down upon and break it. I showed it to one of the judges as best I could. A few weeks after the show, the Editor of the *British Bee Journal* said, "No one had as yet thought of shading hives." I have done so for forty years.—A LANARKSHIRE BEE-KEEPER.

### PLACING SWARMS INTO STEWARTON HIVE.

I HAVE a swarm of bees in a straw skep which I should like to transfer into a Stewarton hive or hives. I am not particular about increase of stock, but I wish to get the most honey possible this season. To insure this would it be best to place them into two hives as they swarm, and at the end of twenty-one days from issue of first, drive the old stock and unite it to one of them; or, at the end of fourteen days after a natural swarm, drive a second, and after twenty-one days drive all out, and put the whole together? The queen is two years old. If I put them all into one hive should I destroy the old queen, or chance the fittest to survive? And if I should destroy her what would be the best way to manage it? We have a long honey season here. The bees are working on the white Clover at present, and before it is quite past the Heather will be in bloom.—J. E.

[Place your first swarm into two Stewarton body boxes, fitted with comb foundation. In ten days after place on a super and cover well. Do not attempt to kill the old queen unless you have a fertile one to supersede her. As the queen is two years old, it is not unlikely that the first swarm may have a young queen. This occurs very often, and bee-keepers would be doing right if they never kept any but young queens. Place the second swarm into a single body box and the driven bees from the old



stock the same, and in three or four weeks add another box, and with a little feeding both should be in good order by the time the Heather is in bloom if the queens do not meet with any accident. If you wish to have a very strong one, three weeks after one of them is fertilised depose the old queen of the first swarm and add box, bees, and brood of one of the young queens to it. The old queen is thereby removed, and you will have two good stocks for this as well as next year. Never leave the queens to decide which is the fittest, unless both are young or *vice versa*.]

### TRADE CATALOGUES RECEIVED.

Ewing & Company, Sea View Nurseries, Havant, Hampsbire.—*List of Roses, Ivies, and Hardy Climbing Plants.*



\* \* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**TO CORRESPONDENTS.**—We desire to assure those of our correspondents whose letters and communications are not promptly inserted that they are not the less appreciated on that account. Our pages are practically filled several days prior to publication, and letters arriving on Wednesday morning, except by special arrangement, are invariably too late for insertion. The delay in the publication of some of these is not of material importance, but reports of meetings and shows held a week previously lose much or all of their value if not received in time to appear in the current issue.

**Flower Shows (Ferndale).**—If you consult the "Coming Events" at the head of our leading article each week you will see the principal shows announced for the week of issue. We have also published a list of shows for several weeks, and you will find several advertised in the second page of the cover.

**Melons Failing (T.W.).**—We do not think the fault is in the soil, but the house is too damp considering the temperature that is maintained. Increase it from 5° to 10° at night, and the collapse of the plants will probably be arrested. We have seen many similar instances of plants failing in naturally damp houses, and a higher range of temperature has almost invariably proved beneficial.

**Propagating Double Gorse (Whin).**—Side shoots or slips of nearly ripe wood are inserted firmly in sand under bandlights in a shaded position in summer and early autumn. They should be inserted two-thirds of their length and kept moist. You had better not expect that every cutting will strike, but put in plenty to allow for a few failures.

**Ammonia in Ferneries (D.).**—A solution of sulphate of ammonia sprinkled on the paths and stages in the evening is good for most plants, but we have not tried it for Ferns, as ours are as healthy as can be desired without having recourse to that practice. We should not apply it to the hot-water pipes at any time, nor to the paths in the daytime in bright weather, but only in the evening when closing the house.

**Peach Leaves Injured (G. M.).**—The leaves you have sent are not blistered, but the tissue has shrunk, dried, and fallen out in places. We have known this occur after strong fumigation, and as you have plants in the house you may possibly have been fumigating for the destruction of insects. If you have not we can only attribute the shrivelling of the foliage to excessive transpiration, or moisture passing from them more quickly than it is supplied by the roots, and in that case additional supplies of water must be given to the border.

**Plum Trees, &c., Infested with Aphides (E. D. Y.).**—The points of the shoots are infested with aphides. The best remedy is to summer-prune at once—i.e., cut off all the young shoots not required for extension and burn them. The shoots not removed should be dipped in tobacco water and rubbed with the fingers so as to wet the aphides. Tobacco juice diluted with a fourth or sixth of water is suitable. The trees should then be syringed with the tobacco water, six parts of water to one of tobacco juice, and follow in a day with softsoap solution, 2 ozs. to a gallon of water, and afterwards with clear water for a few evenings so as to thorough wash and clear the trees of the insects. The perforations have no doubt been caused by small green caterpillars. The only cure for them is hand-picking. They are usually found at the back of the leaves, or folded up in the leaves. Squeezing those between the finger and thumb is a ready means of

destruction. The active insect is no doubt "ladybirds" come to feed on the aphides.

**Apple Shoots Dying (J. H.).**—Your Apple trees have been attacked by a caterpillar, the larva of the small ermine moth, which is highly destructive. It may be destroyed by syringing the trees with a solution of softsoap, hellebore powder, and petroleum; but this ought to have been done sooner. That, however, is not the sole cause of the evil of which you complain, for the shoots sent are so weak and densely covered with moss and lichen that we suspect the roots have perished in wet soil. We doubt if such old trees can be renovated, and the only means we can suggest for improving them is to dig drains for conveying stagnant water from the soil, cut out all the dead portions after the leaves fall, and dust every twig when wet with newly slaked lime. Removing some of the old soil down to the roots, adding fresh and covering it with a thick layer of rich manure might also be of service in encouraging the extension of healthy roots near the surface of the ground.

**Glass for Vineries and Plant Houses (J. R.).**—You have failed to indicate the district from which you write. This is a rather important omission, because there is far more sun in some parts of the kingdom than others, and this has a distinct bearing on the case. We can only say that as a rule rough glass is not the best for Vines, and in some districts it would be decidedly inimical. We have known long ranges of vineries glazed with rough glass, but good Grapes could not be grown in them till the houses were reglazed with clear glass. The change from inferior to superior Grapes was not the result of a change of gardener, for the same person was in charge throughout, though he was not responsible for the selection of the glass in the first instance. Nor is rough glass suitable for hardwooded and flowering plants generally, except perhaps Camellias; but Ferns and ornamental-foliaged plants flourish very well under roofs of the nature indicated. You had better show our reply to your employer, and consider the whole matter well before deciding on using rough glass for vineries. We dare venture to say that not one prize will be awarded at Liverpool next week for Grapes that have been produced in houses glazed in the manner advised by your architect.

**Prizes for Wild Flowers (Wilfrid).**—You ask:—"Are annual prizes of small amounts (say from 5s. to 2s. 6d.) for the best collection of wild flowers of the district at a local flower show of benefit in the interest of botanical science or not? Do not a continued search for such collections gradually exterminate many a rare plant from the district flora? Which is best, an annual collection or a carefully preserved collection, duly named and classified, and prizes offered for the best collection of plants that are not to be found in this preserved collection?" Undoubtedly a carefully preserved, duly named, and classified collection is desirable for educational purposes, but we are inclined to think that offering prizes for plants only that are not in that collection would be more likely to lead to the extermination of "rare" species from the district flora than would result from the alternative plan of offering prizes annually for fresh collections. We fail to see that the methods can be properly placed in comparison, and we are of opinion that the adoption of both would be better than the exclusion of either. Wild plants are not exterminated by gathering flowers from them, but by digging up the roots. Cutting off all the leaves would weaken the plants, but it is not usual for this to be done in cutting the flowers. Let it be an injunction that flowers only are to be cut, with such leaves that grow on their stems, the roots not to be disturbed at all, and a love for native plants would be inculcated, and collectors of flowers become preservers of rare species. We have not the slightest objection, however, to publish any opinions that may differ from our own on this subject. It would be a very good plan to preserve any flowers exhibited that are not included in the dried collection, and this would then be gradually extended.

**Vine Leaves Scorched (F. G.).**—The cause of the withered condition of the leaves we attribute to defective ventilation, due provision not having been afforded for the exit of dry heated air, and this has encouraged the increase of the small insect, but great Vine pest, the red spider. There is no "cure" for such leaves as those you have sent, but the evil may be prevented from spreading to the others with better management. At no time should the top ventilators be closed entirely, except for an hour or two after syringing or damping the house in the afternoon, opening the top ventilators an inch or so at nightfall, and increasing the openings immediately the temperature commences rising in the morning. Carefully remove the worst leaves and burn them, and you will destroy many insects that you will not see. Syringe the Vines as violently as you can short of injuring the leaves. A mere squirting will be of no use, but point the syringe between the bunches and drive the water directly to the under side of every leaf, thus giving each a thorough washing. If this work is done thoroughly not many insects will be left on the foliage. Use a gallon of water to each square foot of roof, more rather than less. One good washing of this kind weekly will be more effectual than daily sprinklings. This washing should be done soon enough in the evening for the Vines to get nearly dry before night. Syringe every part of the house well every evening in sunny weather; let not a dry spot remain of soil, walls, or woodwork; also immediately after the sun has left the house, and the Grapes stoned, sprinkle the paths well with liquid manure. Guano water will do admirably, 2 ozs. of the fertiliser being dissolved in a gallon of water; but take care to open the top ventilators three or four hours afterwards, as above advised, leave them open all night, and give more air as early in the morning as is required, even if this be at five o'clock, the time depending on the position of the house for receiving the morning sun. Water the roots of your Vines copiously if the soil is in the least dry, not on the surface only, but 2 feet below it. If you carry out these instructions as we should act on them ourselves, your Vines will improve. Late syringing may be done in sultry weather, not on cold wet nights. It is much better to shade Vines lightly than to let the leaves and berries be scorched, as yours are. If your Vines are overcropped remove some of the bunches.

**Feeding Vines Through the Foliage (Omega).**—Supplying ammonia in the atmosphere of vineries has long been practised, certainly more than half a century, and has been frequently referred to in the *Journal of Horticulture*, especially in "Work for the Week." It is best afforded in the



early stages by beds of fermenting materials made up inside the house, and turned over frequently so as to prevent over-heating, and when the heat is declining adding fresh. The ammonia is also liberated more freely when the material is open than when closely packed. During growth light mulchings of fresh droppings are the best to afford ammonia, giving a light sprinkling about once a week, and continuing it up to the time the Grapes change colour. The droppings will get damped frequently, and give out ammonia with the moisture. Care should be taken not to give too much. Liquid manure—that from stable and farmyard cesspools, sprinkled on the pathways in the afternoon at closing time is beneficial. We use a four-gallon watering pot full in a house 40 feet by 20 feet, and through a rose. The best is the drainage from stables, it smells sweetest, and is mostly urine. This we dilute with six times the quantity of water, and apply through a rose watering pot fresh about 5.30 P.M., giving sufficient to damp all available surfaces, and we always ventilate fruit houses before nightfall. In a close atmosphere with sun ammonia does harm, often great injury, and it must be used with care. In vineries commence when the Vines are started, and do not discontinue it until the Grapes change colour.

**Fairy Rings on Lawn (Old Subscriber).**—The appearance of these rings has been thus described by Mr. Worthington G. Smith:—"Fairy rings, as formed by Agarics, probably start from a single Fungus which has grown from wind-carried spores. The growth of the spawn of this single Fungus in the ground renders the spot where the individual grew unfit to produce another Fungus of the same class. The spawn then extends itself from the central spot, and grows all through the winter and following summer a circular patch in the earth. One year's growth will give a circle of about 6 inches, and on the outside of this little circle a small fairy ring of Fungi will appear the second year. When this ring of Fungi dies it acts as a rich nitrogenous manure for the grass, so that in the third summer a circle of rank fungus-manured grass is seen. The grassy circle is often in strong contrast with adjoining dead grass killed by the Fungus spawn infesting

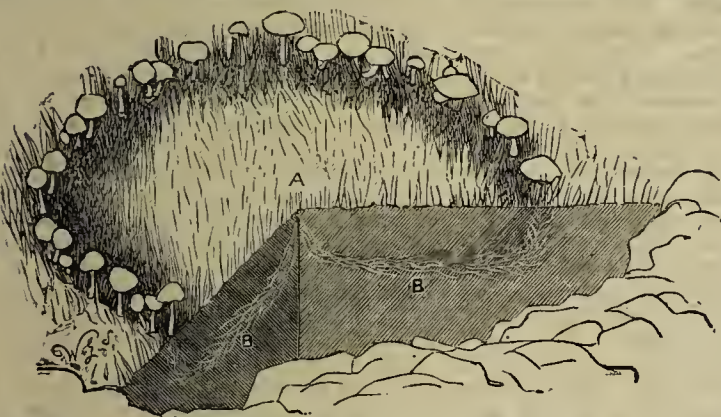


Fig. 95.—Fairy Ring. The ground partly shown in section, A centre, where the original Fungus has decayed, and whence springs the underground spawn, B. B, of the Fungus (*Marasmius oreades*), which gives rise to the fairy ring.

the roots. If circumstances are favourable the underground spawn will now keep on extending itself for forty years or more, until at last an enormous circle is made that may sometimes be seen on hillsides from a distance of a mile or more. If an obstruction occurs a semicircle may sometimes result; at other times, when numerous rings grow near each other in the same pasture, or on the same hillside, various ogee curves and wavy lines of rank grass, barren ground, and Fungi are originated. Sometimes a large fairy ring will appear in a place, as on a lawn, where no Fungi have been seen before, and where no smaller rings have preceded the large one. This phenomenon is caused by the first Fungus being overlooked, and then a series of seasons have followed unsuitable for the production of the Fungi. The spawn, however, has been alive underground, and has kept on year after year extending itself till at last a suitable season arrives, and a crop of Agarics is the result at the circular margin of the underground spawn."

**Destroying the Fungi (Idem).**—You will do no good by digging up the circles, but as the rings are a great disfigurement make holes with a crowbar so as to open the soil beneath the grass, and about a foot deep, and fill them with liquid manure from a tank receiving the drainings of stable, cow-byres, &c., soaking thoroughly twice a day for a week. Potash and nitrogenous manures are needed to eradicate fairy rings. Apply manure, animal or vegetable, or decayed farmyard manure, or the debris of rubbish heaps reduced to mould. Compost formed of ditch cleanings, &c., with a load of lime to every six or ten of the other, thrown in a heap, now or in late summer, and turned over a time or two will be fit to apply in February. A good manuring may be given at that time, or not later than March; but the compost will not give so rank a growth of grass.

**Names of Plants.**—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*Subscriber*).—We do not undertake to name more than six specimens at one time. 5, *Lonicera sempervirens*; 7, *Begonia metallica*; 9, *Begonia lucida*; 10, *Acalypha Macafeana*; 11, *Pteris serrulata*; 12, *Tradescantia discolor*. (*Somerset*).—2, *Carex acuta*; 7, *C. flava*; 8, *C. pallens*; 9, *C. ovalis*; 10, *C. riparia*. (*J. C. H.*).—4, *Ribes speciosum*; 5, *Chelidonium majus*; 6, *Anthericum liliastrium*. The others were too much withered to be recognised. (*Herbert Fleet*).—1, Paul's double Scarlet Thorn; 2, *Crataegus coccinea*; 3, *Crataegus ovalifolia*; 4, *Pavia flava*; 5, *Cornus sanguinea*; 6, *Berberis vulgaris*. (*A. K. C.*).—*Calanthe veratrifolia*. (*Cheshire*).—*Crinum capense*.

## COVENT GARDEN MARKET.—JUNE 23RD.

TRADE more brisk at last week's prices. Outdoor Strawberries making their appearance.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples .. .. .	1/4 sieve	0 0 to 0 0	Oranges .. .. .	100	4 0 to 6 0
Cobs, Kent .. ..	per 100 lbs.	27 6 30 0	Peaches .. .. .	per doz.	4 0 10 0
Figs .. .. .	dozen	3 0 4 0	Pine Apples English ..	lb.	2 0 3 0
Grapes .. .. .	.. lb.	1 6 4 0	Plums .. .. .	1/4 sieve	0 0 0 0
Lemons .. .. .	.. case	10 0 15 0	St. Michael Pines ..	each	4 0 6 0
Melon .. .. .	.. each	1 6 3 6	Strawberries .. ..	per lb.	0 6 1 6

### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes .. ..	dozen	1 0 to 0 0	Lettuce .. .. .	dozen	1 0 to 1 6
Asparagus .. ..	bundle	2 0 5 0	Mushrooms .. ..	punnet	0 6 1 0
Beans, Kidney .. ..	.. lb.	0 6 0 0	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red .. .. .	dozen	1 0 2 0	Onions .. .. .	bunch	0 3 0 0
Broccoli .. .. .	bundle	0 0 0 0	Parsley .. .. .	dozen bunches	2 0 3 0
Brussels Sprouts ..	1/4 sieve	0 0 0 0	Parsnips .. .. .	dozen	1 0 2 0
Cabbage .. .. .	dozen	1 6 0 0	Potatoes .. .. .	.. cwt.	4 0 5 0
Capsicums .. .. .	100	1 6 2 0	.. .. .	.. cwt.	4 0 5 0
Carrots .. .. .	bunch	0 6 0 9	Rhubarb .. .. .	bundle	0 2 0 0
Cauliflowers .. ..	dozen	4 0 6 0	Salsafy .. .. .	bundle	1 0 1 6
Celery .. .. .	bundle	1 6 2 0	Scorzonera .. ..	bundle	1 6 0 0
Coleworts .. .. .	doz. bunches	2 0 4 0	Seakale .. .. .	per basket	0 0 0 0
Cucumbers .. .. .	.. each	0 3 0 6	Shallots .. .. .	.. lb.	0 3 0 0
Endive .. .. .	dozen	1 0 2 0	Spinach .. .. .	bushel	3 0 4 0
Herbs .. .. .	bunch	0 2 0 0	Tomatoes .. .. .	.. lb.	0 8 0 0
Leeks .. .. .	bunch	0 3 0 4	Turnips .. .. .	bunch	0 4 0 6

### PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0 to 13 0	Ficus elastica ..	each	1 6 to 7 0
Arbor vitae (golden)	dozen	0 0 0 0	Finchia .. .. .	per dozen	6 0 12 0
.. (common) ..	dozen	6 0 12 0	Foliage Plants, var.	each	2 0 10 0
Arum Lilies .. ..	dozen	0 0 0 0	Genistas .. .. .	dozen	0 0 0 0
Azaleas .. .. .	dozen	0 0 0 0	Hydrangea .. ..	per dozen	6 0 12 0
Bedding Plants, var.	doz.	1 0 2 0	Ivy Geraniums ..	per dozen	3 0 6 0
Begonias .. .. .	dozen	6 0 9 0	Lilies of the Valley, in	pots, per doz.	0 0 0 0
Calceolaria .. ..	per dozen	6 0 12 0	Lobelia .. .. .	per dozen	4 0 6 0
Cineraria .. .. .	dozen	0 0 0 0	Marguerite Daisy ..	dozen	8 0 12 0
Cyclamen .. .. .	dozen	0 0 0 0	Mignonette .. ..	per dozen	4 0 8 0
Cyperus .. .. .	dozen	4 0 12 0	Musk .. .. .	per dozen	2 0 4 0
Dracena terminalis, dozen	30	0 0 60 0	Myrtles .. .. .	dozen	6 0 12 0
.. viridis .. ..	dozen	12 0 24 0	Palms, in var. ..	each	2 6 21 0
Erica, various ..	dozen	12 0 24 0	Pelargoniums, scarlet, doz.	3	0 6 0
Enonymus, in var.	dozen	6 0 18 0	Pelargoniums ..	per dozen	9 0 18 0
Evergreens, in var.	dozen	6 0 24 0	Spirea .. .. .	dozen	6 0 12 0
Ferns, in variety ..	dozen	4 0 18 0			

### CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons .. ..	12 bunches	2 0 to 4 0	Marguerites .. ..	12 bunches	3 0 to 6 0
Anemone .. .. .	doz. bunches	2 0 4 0	Mignonette .. ..	12 bunches	3 0 6 0
Arum Lilies .. ..	12 blooms	4 0 6 0	.. Double white 12 blooms	1	0 2 0
Azalea .. .. .	12 sprays	0 0 0 0	Pelargoniums, per 12 trusses	0	9 1 0
Bouvardias .. ..	per bunch	0 6 1 0	.. scarlet, 12 trusses	0	4 0 8 0
Camellias .. ..	12 blooms	0 0 0 0	Paeonies, various 12 blooms	1	0 2 0
Carnations .. ..	12 blooms	1 0 3 0	Ranunculus .. ..	12 bunches	4 0 8 0
Chrysanthemums 12 blooms	0 0 0 0		Roses .. .. .	12 bunches	4 0 9 0
Cowslips .. .. .	doz. bunches	0 0 0 0	.. (indoor), per dozen	1	0 9 0
Daffodils .. .. .	12 bunches	0 0 0 0	.. Tea .. .. .	dozen	0 9 2 0
Epiphyllum .. ..	doz. blooms	0 0 0 0	.. red .. .. .	dozen	2 0 4 0
Eucharis .. .. .	per dozen	4 0 6 0	.. Moss .. .. .	12 bunches	6 0 12 0
Gardenias .. ..	12 blooms	2 0 4 0	Primroses, Yellow, dozen		
Hellebore .. ..	doz. blooms	0 0 0 0	dozen bunches ..	0	0 0 0 0
Hyacinths, Roman, 12 sprays	0 0 0 0		Pyrethrum .. ..	12 bunches	4 0 9 0
Iris .. .. .	12 bunches	9 0 18 0	Spirea .. .. .	12 sprays	9 6 1 0
Lapageria, white, 12 blooms	0 0 0 0		Stephanotis .. ..	12 sprays	2 0 3 0
Lapageria, red .. 12 blooms	1 0 2 0		Tropaeolum .. ..	12 bunches	1 0 3 0
Lilac .. .. .	per bunch	0 0 0 0	Tuberoses .. ..	12 blooms	0 6 1 0
Lilium longiflorum, 12 blms.	3 0 6 0		Violets .. .. .	12 bunches	0 0 0 0
Lily of the Valley, 12 sprays	0 0 0 0		.. Czar, Fr., ..	bunch	0 0 0 0



### GREEN PASTURES.

SPECULATIVE farming if carried on so extensively as to involve risk of loss is a serious matter. It is a rash proceeding on the part of anyone, and is especially to be avoided by the home farmer, whose position of high trust should render him doubly cautious in what he undertakes. It may undoubtedly be said that all farming operations are more or less of a speculative nature, from the fact of results being so dependant upon weather. That, however, is well understood, and due allowance is made for it; but the term speculative is used here to indicate novel cultivation, a bold step out of the beaten track, a venture of such an experimental character that the result may prove a total failure. Yet without experiments



how is improvement possible? Certainly we should try experiments—every farmer should do so for himself, but it should invariably be done on so small a scale that there can be no material loss. We would have on every farm of a hundred acres and upwards a few perches of land set aside for trial plots. In our own practice we like the plots to be a series of parallelograms, 12 feet by 6 feet, with narrow paths between, and a broad path along the front. This plan enables us to test seed and manure under precisely similar conditions, and we derive much pleasure and instruction from it. When we first began our trials we were told that such little plots of corn would certainly attract the birds and we should lose all the grain as it ripened, but we sustained no such loss, and we gained much useful information from our trials of all the sorts of Wheat, Barley, and Oats procurable, and sown side by side. Roots and green crops were also tried in the same manner.

Of green crops the Grasses and Clovers were the most important, our object being to ascertain the value of certain sorts either for temporary or permanent pastures. It was found that the best way of doing this was to sow one plot of each sort, and to sow two or three plots with different mixtures. By this means much useful information was obtained of the relative value of the sorts tried as forage plants, and this is also one of the best ways of becoming familiar with them. It is by no means intended to assert that one can learn all about Grasses in this way, far from it, but by intelligent observation and by reading all that is written about them, a fund of useful information may be gained upon which to draw in the actual process of laying down land, especially in permanent pasture.

Simple as is the process of the sowing and development of new pastures, there is probably nothing in agriculture so badly done or which so frequently proves a failure. We were recently asked in "The Land Agents' Record," to "Look at the newly laid pastures which so often fail, in which the strong and robust Grasses stand alone, and the finer ones either do not come up at all or die off as soon as up. The seed is blamed, the season is blamed, the birds are blamed, but the real cause is too often (not always) the want of tilth. Careful husbandry can alone secure this, and a careful sowing to cover every seed, and this not too deep. When walking lately over a young pasture, the result of surface sowing, the uncovered seed was apparent, the plants were living a struggling existence—sitting, as it were, upon the surface." We happen to have seen a similar example of slovenly husbandry this season, a poor tilth, the soil quite hard in some places, and the seed scattered upon the surface by hand. Much of it appeared to be growing, but many of the finer Grasses will be lost in July. If we would have green pastures worthy of the comprehensive designation, we must set about it in the right way, and work out the entire process step by step. To be really master of the work there must be no omission of a single detail from trial plot to well-knit pasture. Repeatedly have we enumerated every detail of the work:—Soil well drained, made clean of foul weeds so far as roots are concerned, so broken up by plough cultivators, harrows, rollers, and horse hoes as to ensure a deep very fine tilth, and sufficiently stored with fertility to induce a free strong growth from the beginning; most careful management for the first two seasons, preferably by lamb-folding the first year, and sheep-folding in the second. Can anything be more simple, and apparently more easy?

Before writing this paper we had been over some 200 acres of grass land laid in for hay. Out of that rather large area even for a home farm we found only about one-fourth had a really full crop, the remainder having in some places half a crop, and in others there was hardly enough grass to mow. The cause and remedy were not difficult to understand. All the faults in the crop were clearly owing to faults of soil and not of season. Poverty and a want of drainage were the chief evils, but there were such others also as usually follow carelessness or mismanagement in laying down land to

pasture. How bitter must be the feelings of the owner of such pasture if he has sufficient knowledge or sense to know that his property is spoilt, his means wasted through mismanagement. Crass ignorance and its invariable concomitant of conceit may be passed by with a smile of pity, a feeling of regret, when displayed by a tenant farmer, but a home farmer who is found wanting in practical knowledge of his calling must know that he will have to suffer for it. Repeatedly have we had to listen to positive statements that a growth of "natural" Grasses makes the best pasture, and while refraining from the very natural desire to answer a fool according to his folly in the double meaning of the term, a leading question or two makes him tell one that such men eschew trial plots, and are ignorant of most of the details which go to the management of Grass land so as to render it worthy of our title of Green Pastures.

#### WORK ON THE HOME FARM.

Though continued much later than usual corn-hoeing is now over, the last job of this kind being a second turn after Thistles among spring Oats, and the men were then sent with the hoes among the Mangolds both to get weeds under and to thin the Mangold plants which are now making rapid progress. With the exception of one heavy land farm where the plant is thin and weak, the Mangold crop bids fair to be a good one, although backward in comparison with the growth of ordinary seasons. We have several trials of various manure mixtures for Mangolds in progress, concerning which we hope to have something to say in due course. Swede seed germination has been satisfactory, and it was followed by a growth so quick as to soon place them out of danger from the ravages of the Turnip fly. The first sowings of White Turnips are making satisfactory progress, our especial object with this crop being the early folding of old sheep. As the sheep clear off the crop of Winter Tares the land will be ploughed in readiness for drilling cattle Cabbage in July, for a supply of green food for sheep or cows late next spring and in early summer. The haymaking which began with Sainfoin followed by Red Clover, Rye Grass, and mixed layers, will now soon become general among meadow Grass also. The purchase of a couple of new rick cloths is a reminder of occasional negligence to provide such means of protection for hayricks during the haymaking. Yet to undertake hay-making without rick cloths is indeed a rash proceeding. Nor is it enough simply to cover the rick with a cloth, for there is a right and a wrong way of doing this. The right way is to raise and lower the cloth by means of three poles—two being set upright at the ends of the rick to support the third pole, over which the cloth is thrown to be raised and lowered by ropes in pulley blocks fastened near the tops of the upright poles. Although arranged to keep off rain from the rick in course of construction, the cloth is kept far enough above it to allow the vapour arising from fermentation to escape freely. We allow no ricks to be in actual contact with the soil, but have a double layer of spray faggots at bottom. Negligence of this simple matter often causes much hay to be spoilt, for when the hay is pressed down upon the soil moisture ascends by capillary attraction, and a layer of considerable thickness becomes musty and worthless. We prefer making a few big ricks to having several small ones. A rick which at bottom measures 12 yards long by 6 yards wide may be made so as to contain from twenty to twenty-five tons of hay, which if well made and put in the rick with due care is quite certain to prove really excellent food. For ricks of this size a sack stuffed with straw should always be drawn upwards at the centre of the rick in the building to form a funnel for the escape of vapour.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain
	Baromet- er at 324 and Sea Level	Hygromet- er.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1886.											
June.											
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday .....	13 29.803	58.4	51.8	N.	56.4	66.7	50.4	120.4	47.4	0.017	
Monday .....	14 30.043	62.3	54.7	S.E.	56.8	68.6	46.4	114.0	41.3	0.010	
Tuesday .....	15 30.035	59.0	50.6	N.W.	56.6	66.7	52.2	113.7	46.6	—	
Wednesday ..	16 30.095	56.2	49.3	N.W.	56.4	61.3	46.0	120.6	39.9	—	
Thursday ....	17 30.059	53.8	48.7	W.	56.2	60.6	46.7	105.7	41.4	—	
Friday .....	18 30.018	51.6	43.1	N.W.	55.4	54.7	47.6	78.7	44.2	0.071	
Saturday ....	19 29.812	57.4	53.8	N.W.	54.8	72.6	48.2	119.2	47.7	—	
	29.981	57.0	51.0		56.0	65.0	48.2	110.3	44.1	0.097	

#### REMARKS.

13th.—Generally bright, with one or two slight showers.  
14th.—Fine bright morning, cloudy afternoon, with slight rain towards evening.  
15th.—Cloud and sunshine, the latter predominating in the afternoon.  
16th.—Generally cloudy, but some sun in early afternoon.  
17th.—Fine, but not much sun.  
18th.—Cloudy, and very cold.  
19th.—Rain very early, cloudy morning, with occasional slight rain; fine afternoon, cloudy evening.  
A dry week, but cold and quite unlike June. Day temperatures several degrees below the averages, nights not relatively so cold, as the clouds have prevented radiation.—G. J. SIMONS.

















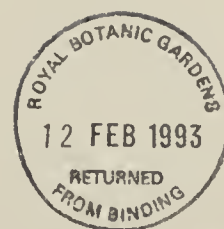












*Deciphered from last section*



